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1858

GEOMETRICAL PROJECTION

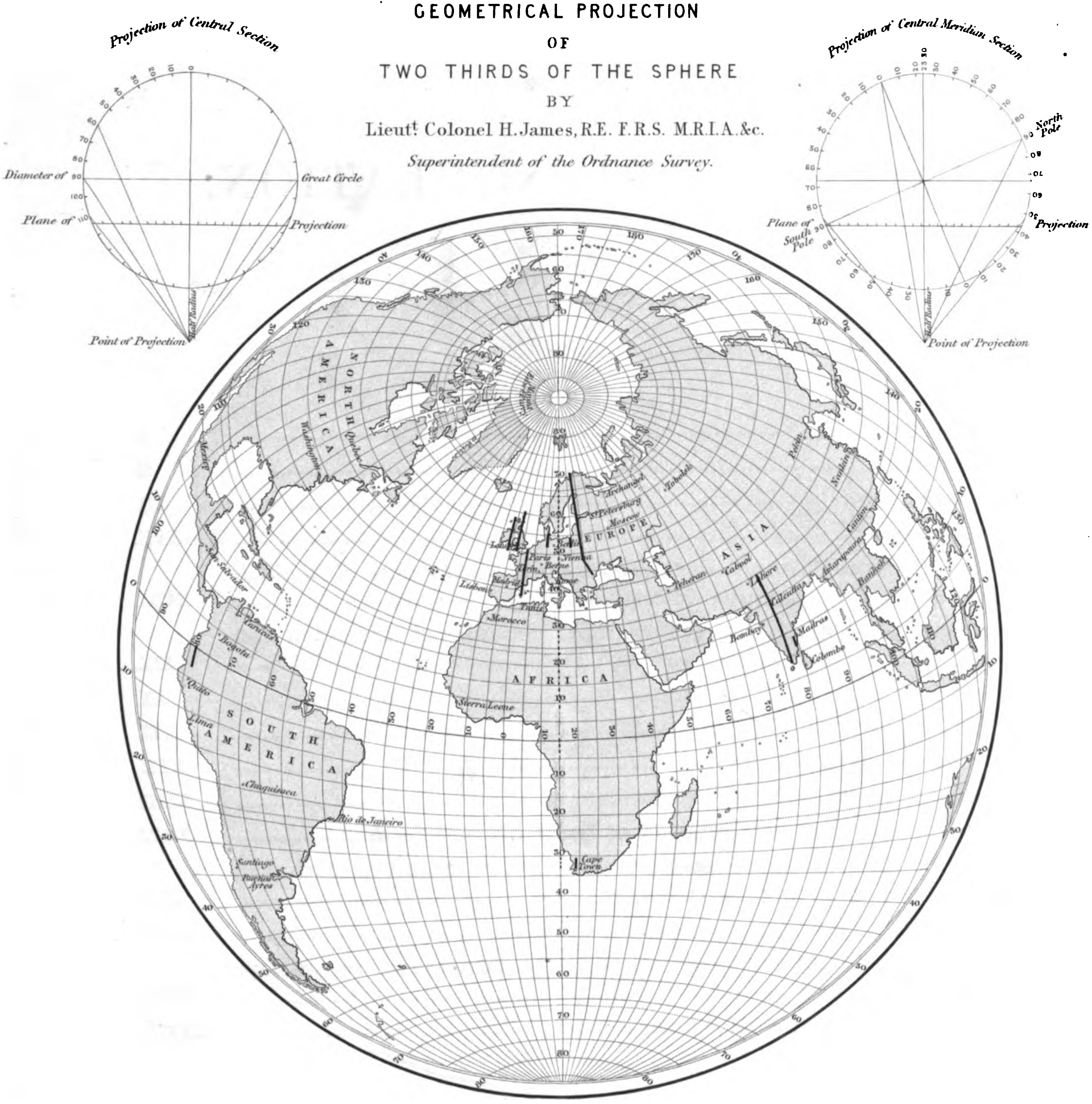
OF

TWO THIRDS OF THE SPHERE

BY

Lieut.^t Colonel H. James, R.E. F.R.S. M.R.I.A. &c.

Superintendent of the Ordnance Survey.



ENGRAVED AT THE ORDNANCE MAP OFFICE SOUTHAMPTON
1857
FROM A REDUCTION MADE BY PHOTOGRAPHY

Note. — *The point of projection is in the axis of a great circle whose pole is in 15° E. Longitude and 23° 30′ North Latitude and at the distance of half the radius above the surface of the sphere. The plane of projection is parallel to this great circle at the distance of 23° 30′ from it towards the point of projection. The projection therefore embraces 227° of a great circle, and consequently $\frac{7}{10}$ or rather more than $\frac{2}{3}$ of the surface of the sphere. The hemisphere was first projected by Hipparchus 200 years before Christ, but this is the first time that a Geometrical projection of more than a hemisphere has been made.*

N.B. The dark lines indicate the position of all the measured arcs of Meridians.

Gt. Brit. Ordnance survey.
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ORDNANCE TRIGONOMETRICAL SURVEY.

PRINCIPAL TRIANGULATION.

Plates.

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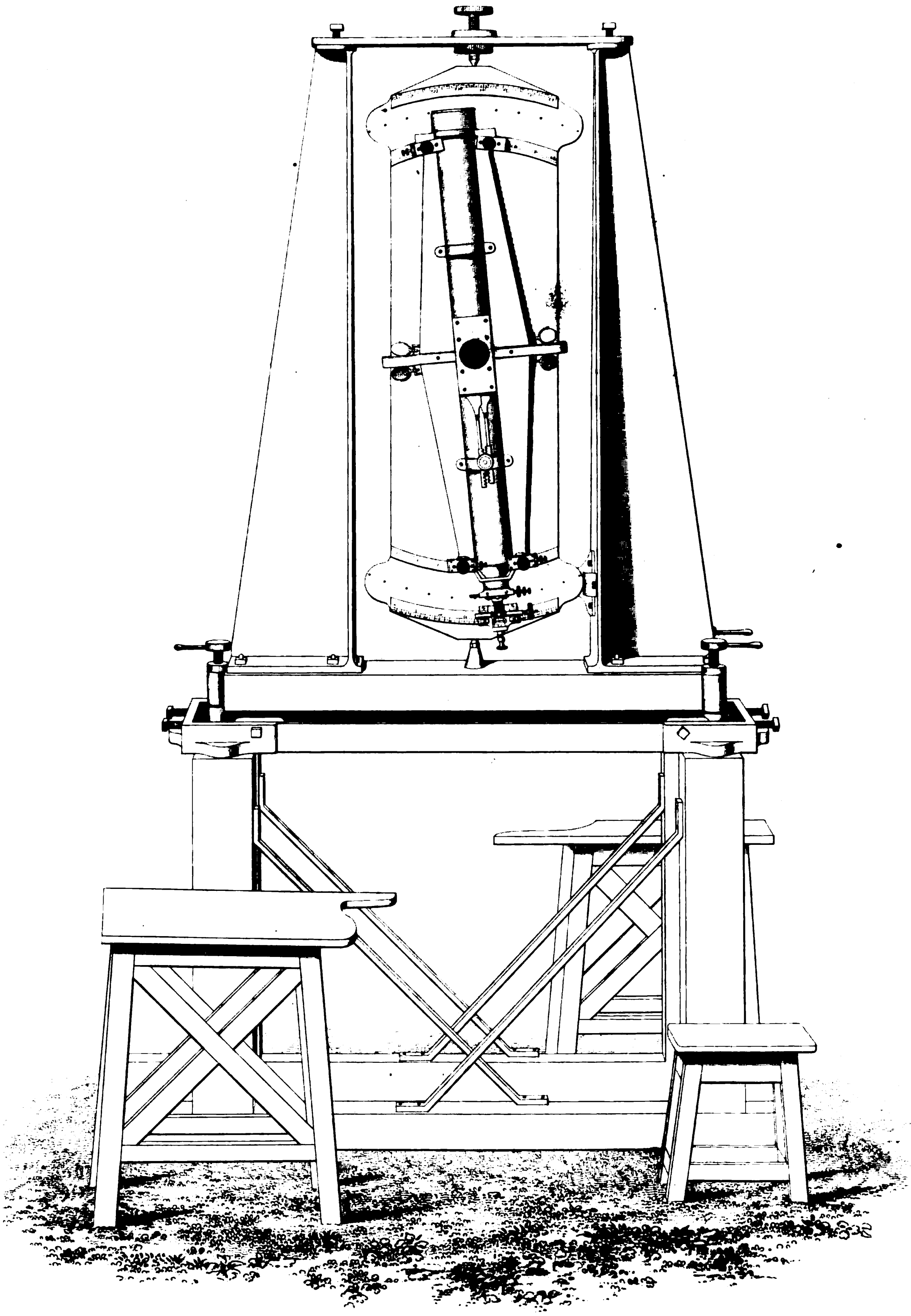
PRINTERS TO THE QUEEN'S MOST EXCELLENT MAJESTY.
1858.

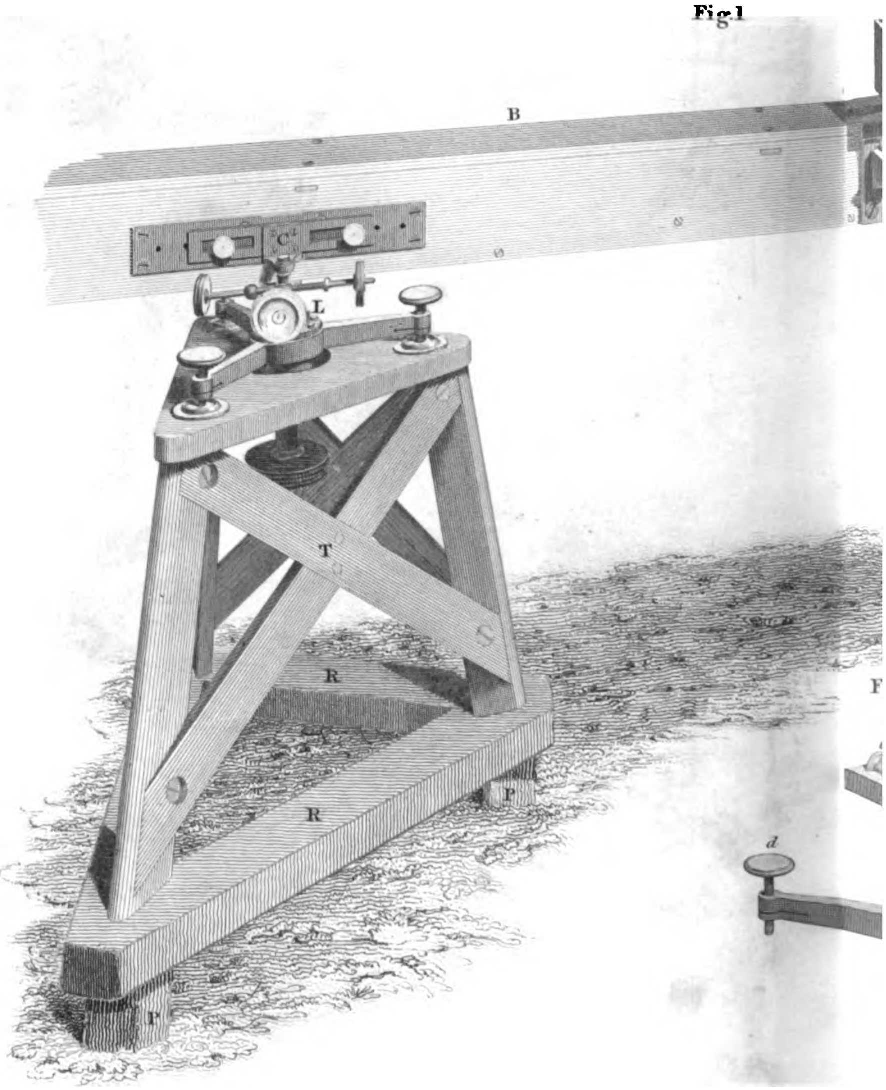
AIRY'S ZENITH-SECTOR

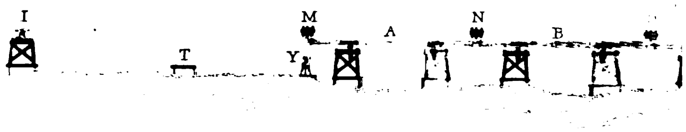
PLATE I



ORDNANCE SURVEY.
Base Apparatus.
PLATE. II.

Fig. 1





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Finished by J. G. Peake at the

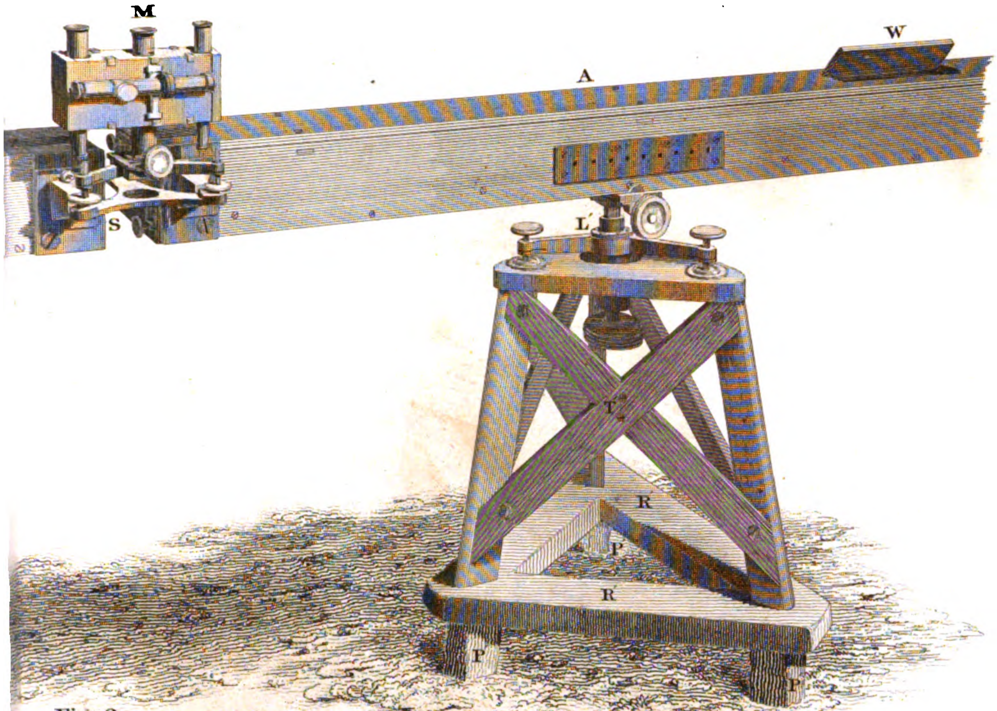


Fig. 2

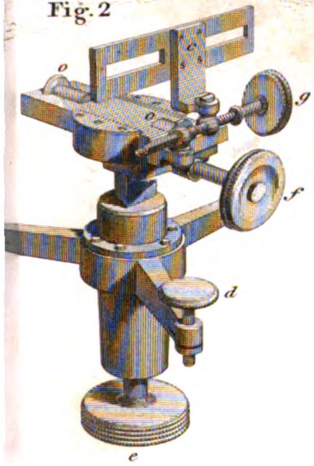


Fig. 3

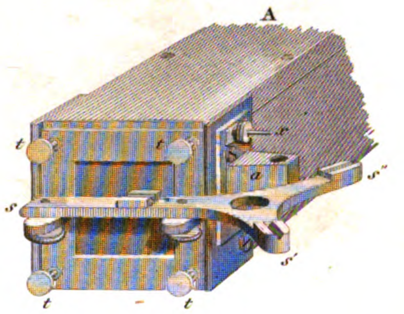
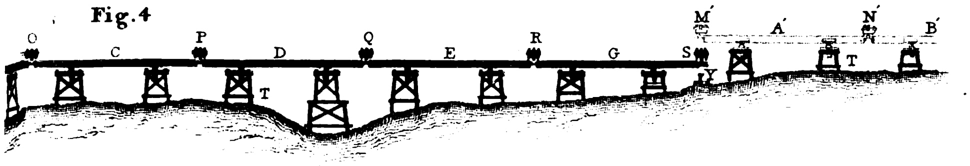
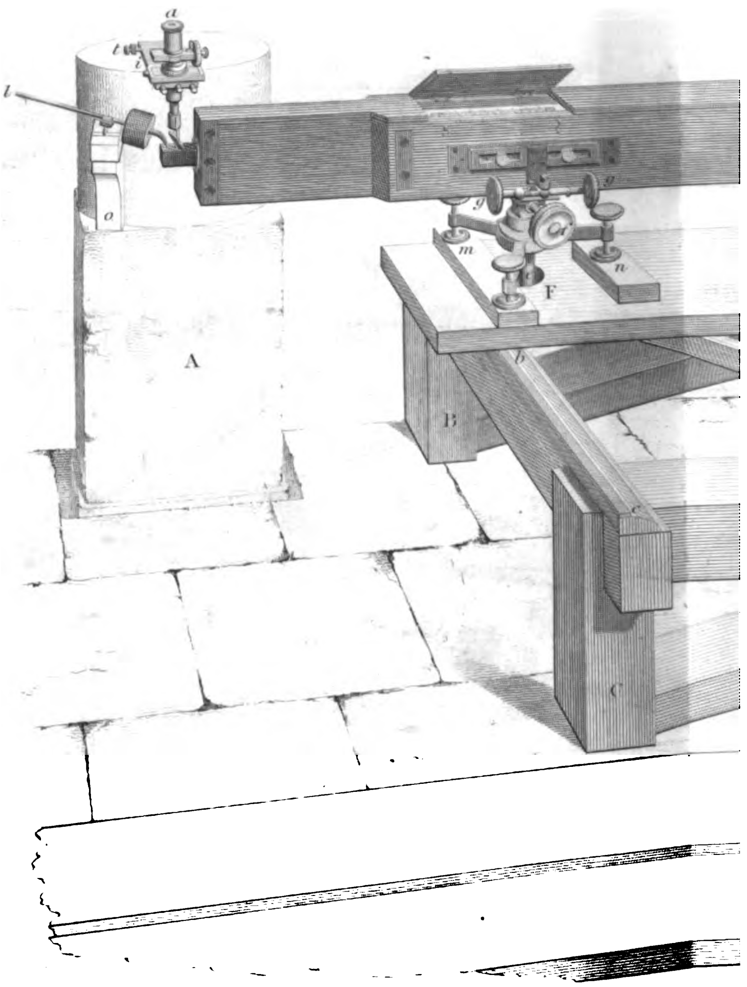


Fig. 4



nd Engraved in Outline by J. Bradley.

at the Ordnance Map Office Southampton March 1847.


a
t
i
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A
g
g
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F
B
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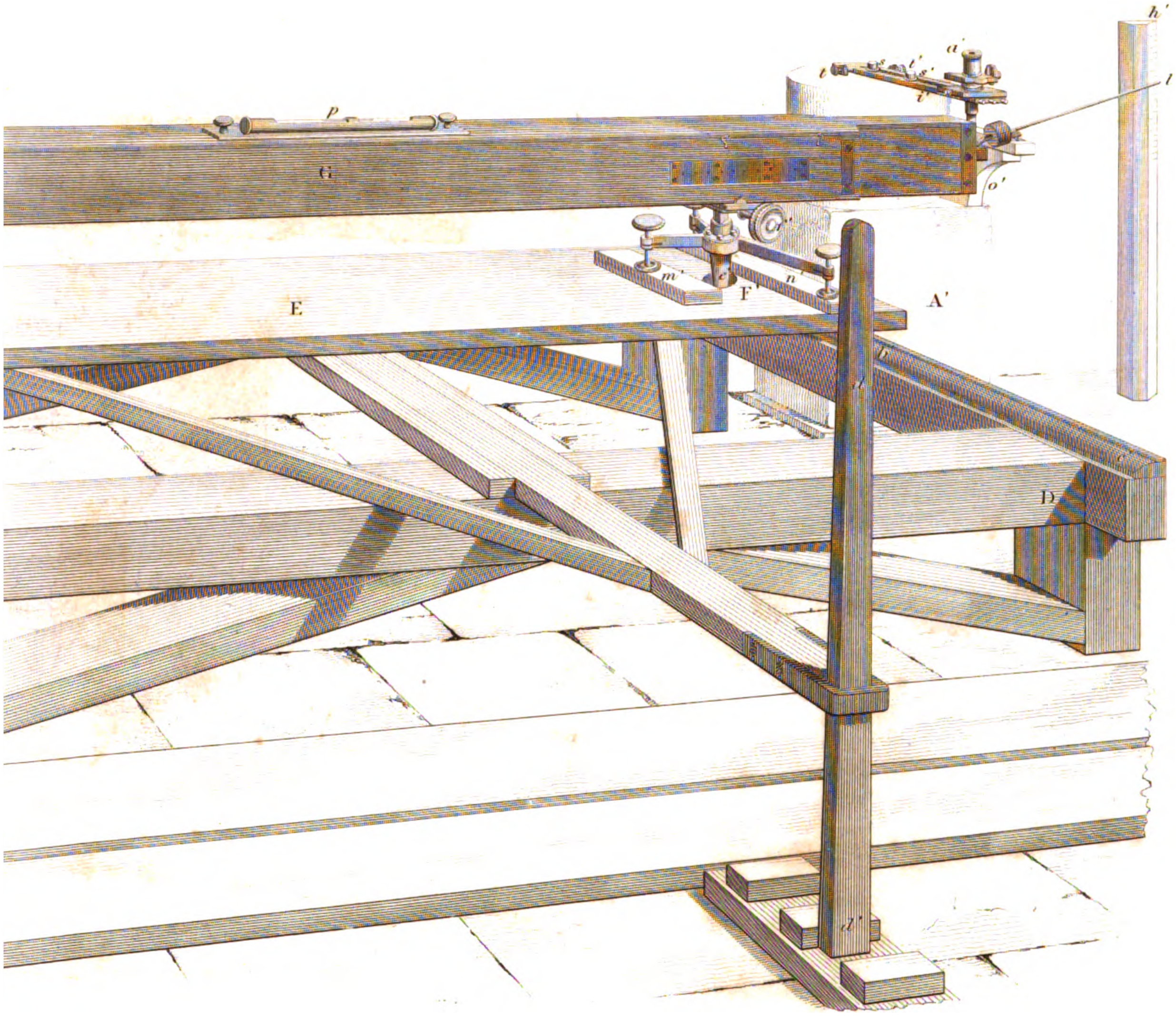
c
C

ORDNANCE SURVEY

Base Apparatus

PLATE III.



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PR

Fig: 1

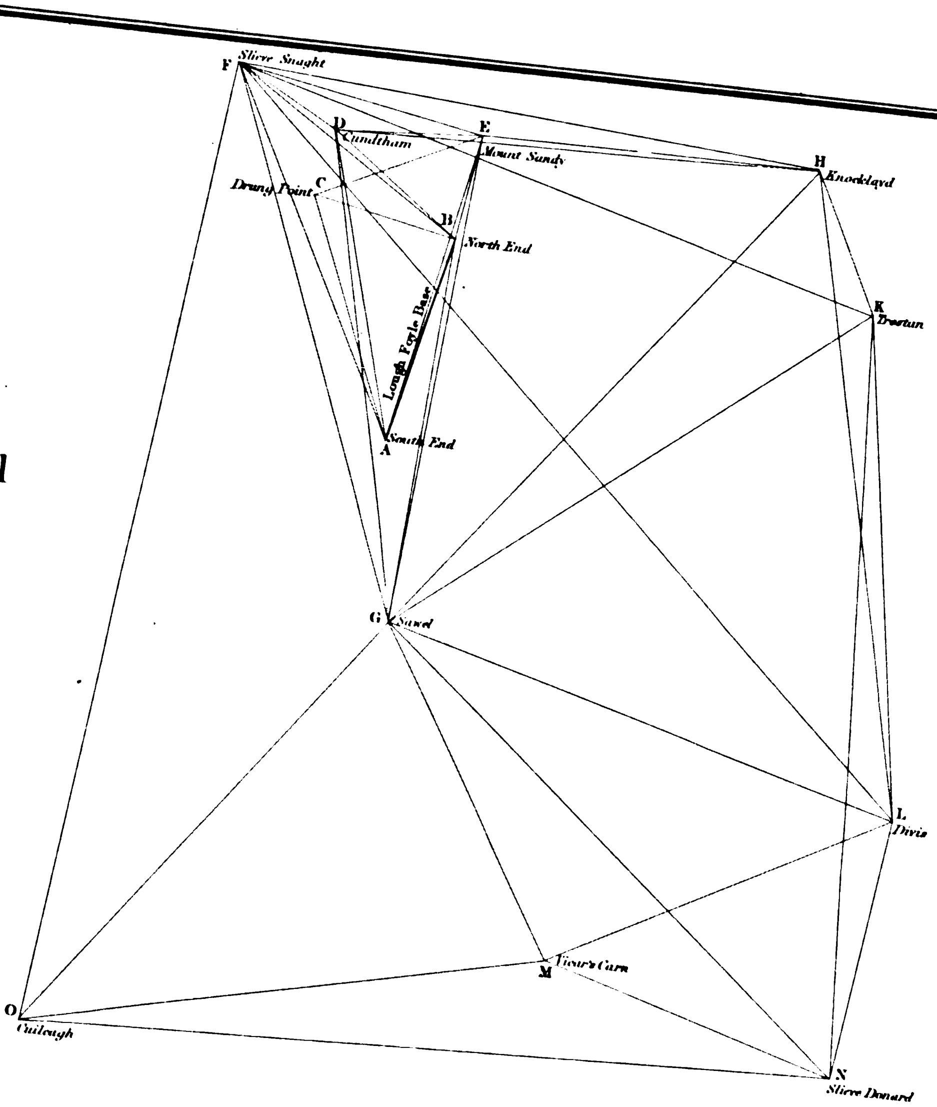

F Slieve Snaght
D Cundtham
E Mount Sandy
C Drung Point
H Knocklayd
B North End
Lough Foyle Base
K Trostan
A South End
G Sawel
L Divis
M Vicar's Carn
O Cuilcagh
N Slieve Donard

Fig. 3

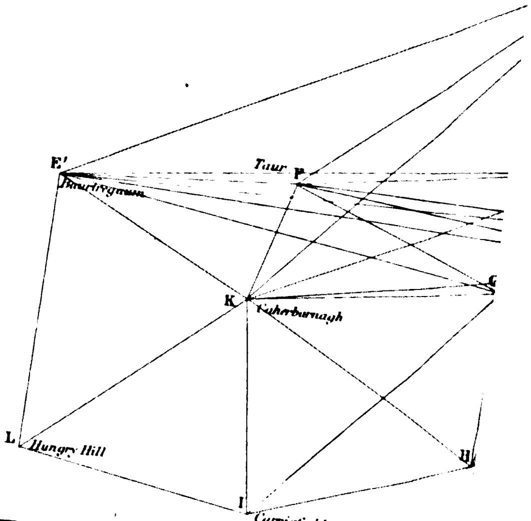
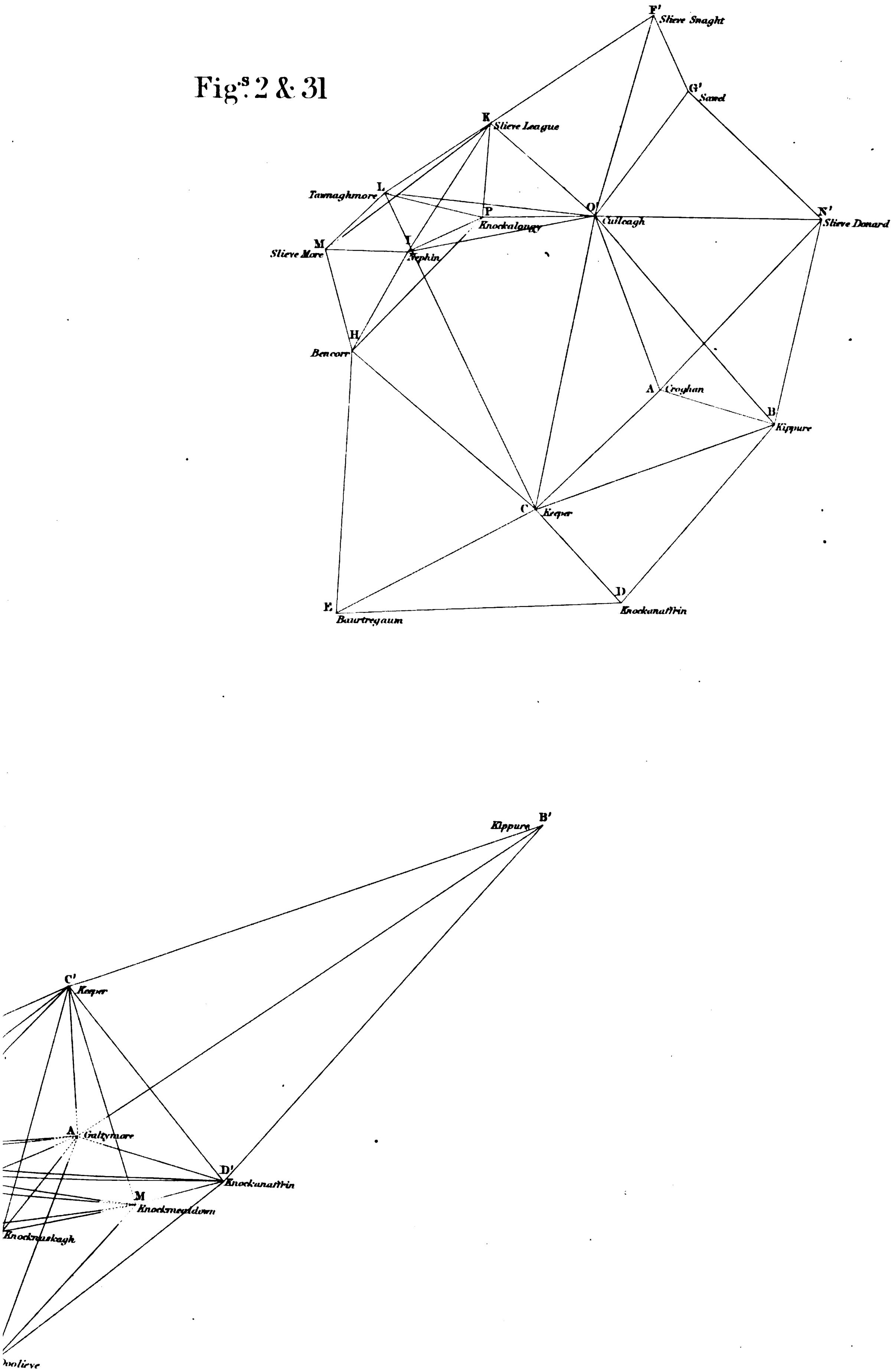
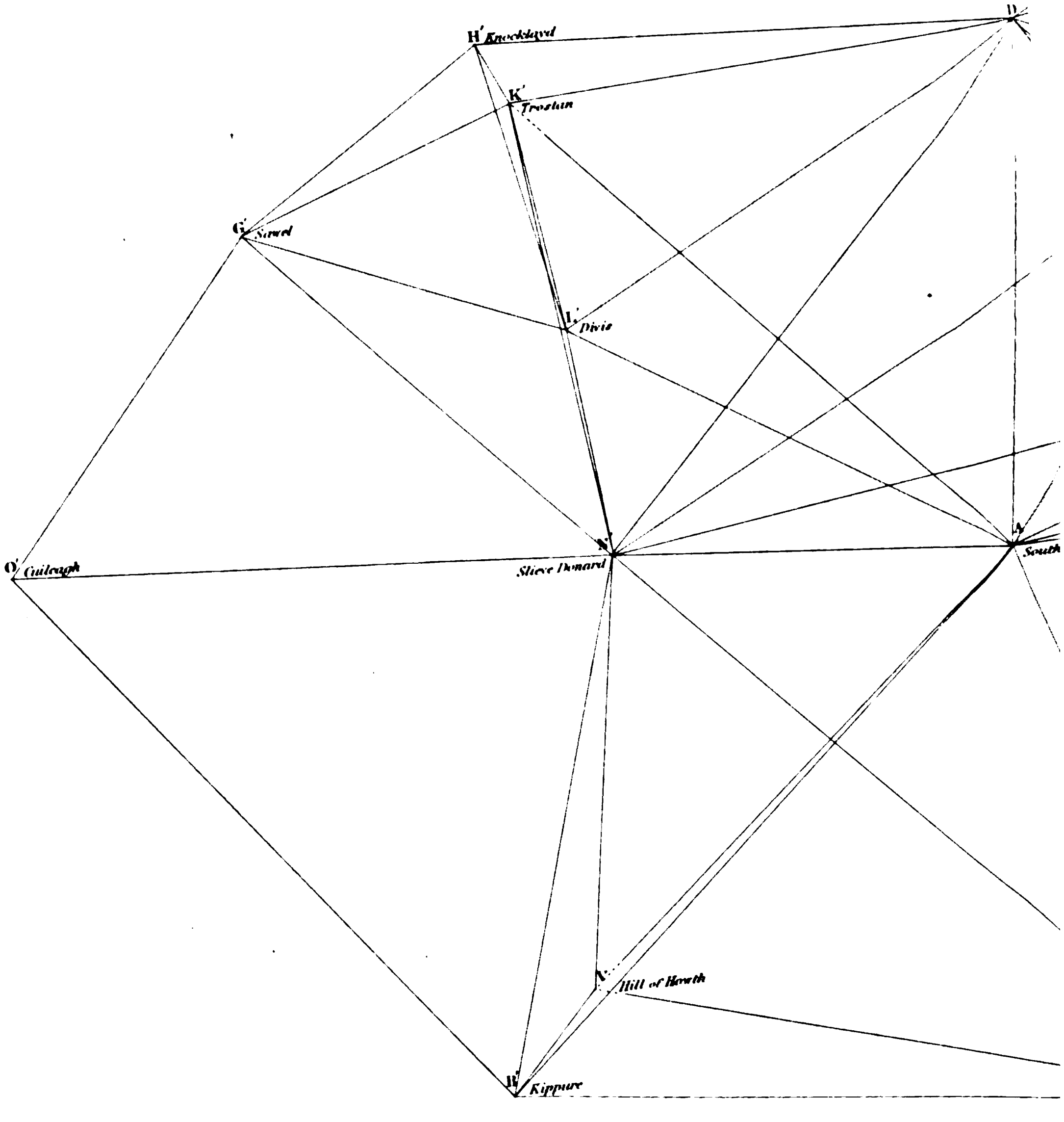

E' Baurtregaum
Taur P
G
K Caherbarnagh
L Hungry Hill
H
I Carrigfadda

Fig.s 2 & 31


F' Slieve Snaght
G' Sawel
K Slieve League
L Tawnaghmore
P Knockalongy
O' Culleagh
N' Slieve Donard
M Slieve More
I Nephin
H Bencorr
A Croghan
B Kippure
C Keeper
E Baurtregaum
D Knockanaffrin
B' Kippure
C' Keeper
A Galtymore
D' Knockanaffrin
M Knockmealdown
Knocknaskagh
oolieve

PRINCIPAL

Figs. 4 & 5



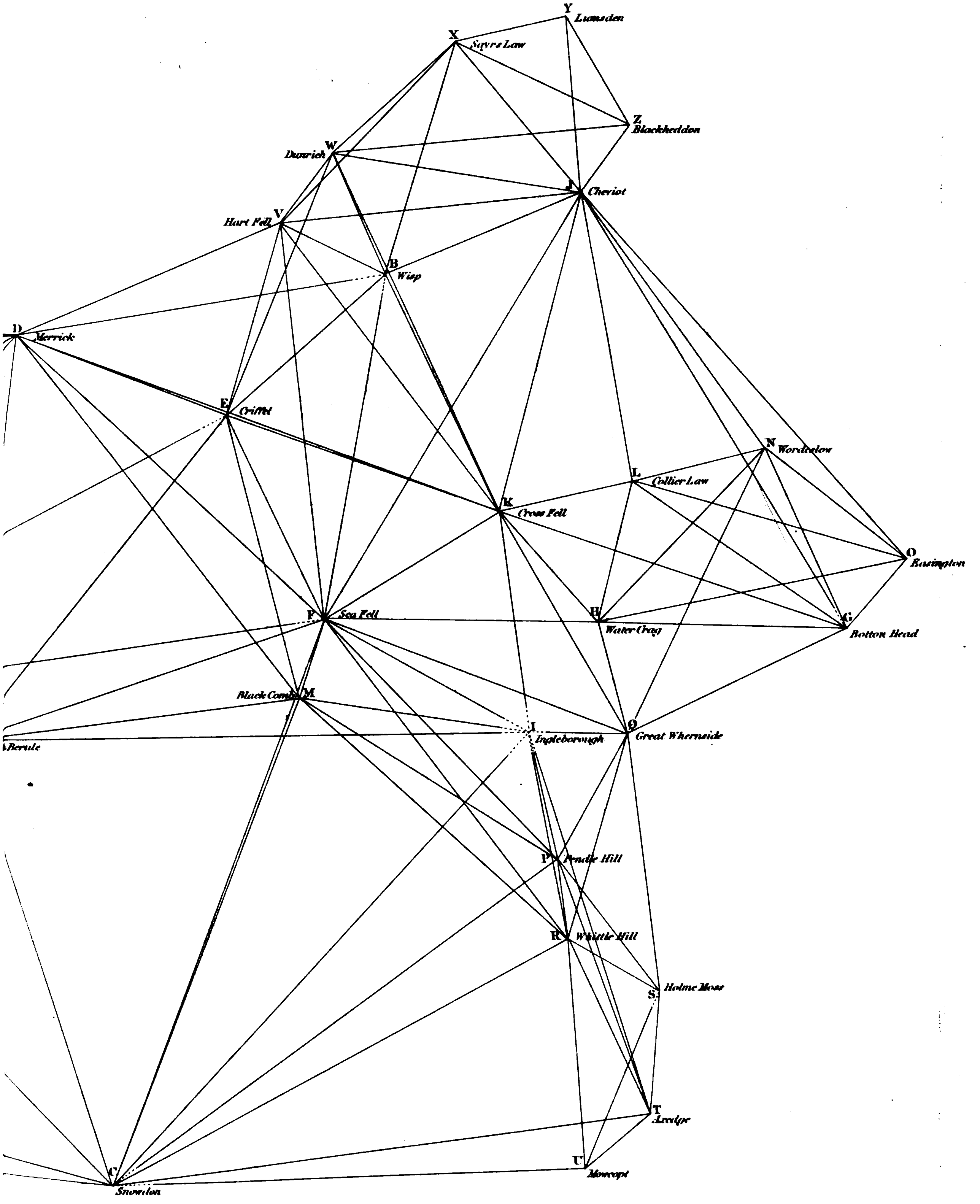

Y Lumsden
X Sayrs Law
Z Blackheddon
W Dunrich
J Cheviot
V Hart Fell
B Wisp
D Merrick
E Criffel
N Wordselow
L Collier Law
K Cross Fell
O Easington
H Water Crag
G Botton Head
F Sea Fell
M Black Combe
I Ingleborough
Q Great Whernside
Berule
P Pendle Hill
R Whittle Hill
S Holme Moss
T Axedge
U Mowcopt
C Snowdon

Fig. 6

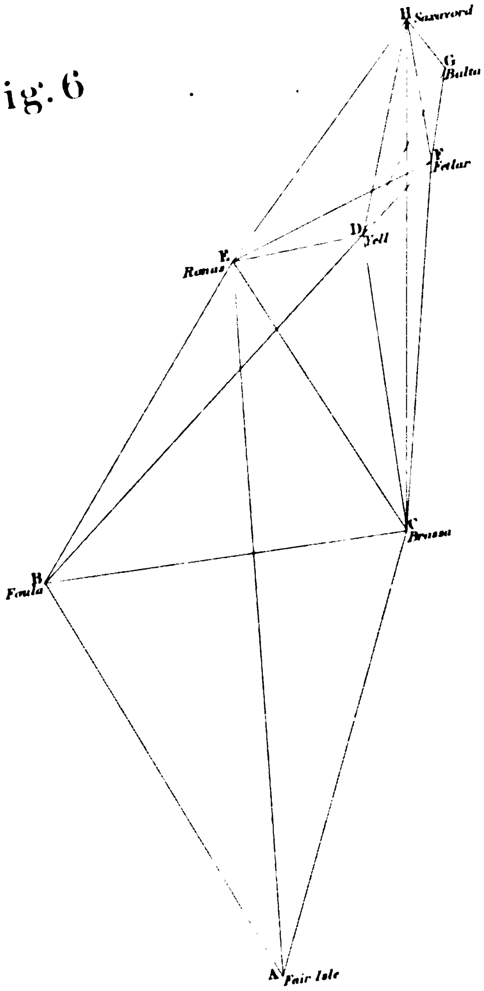
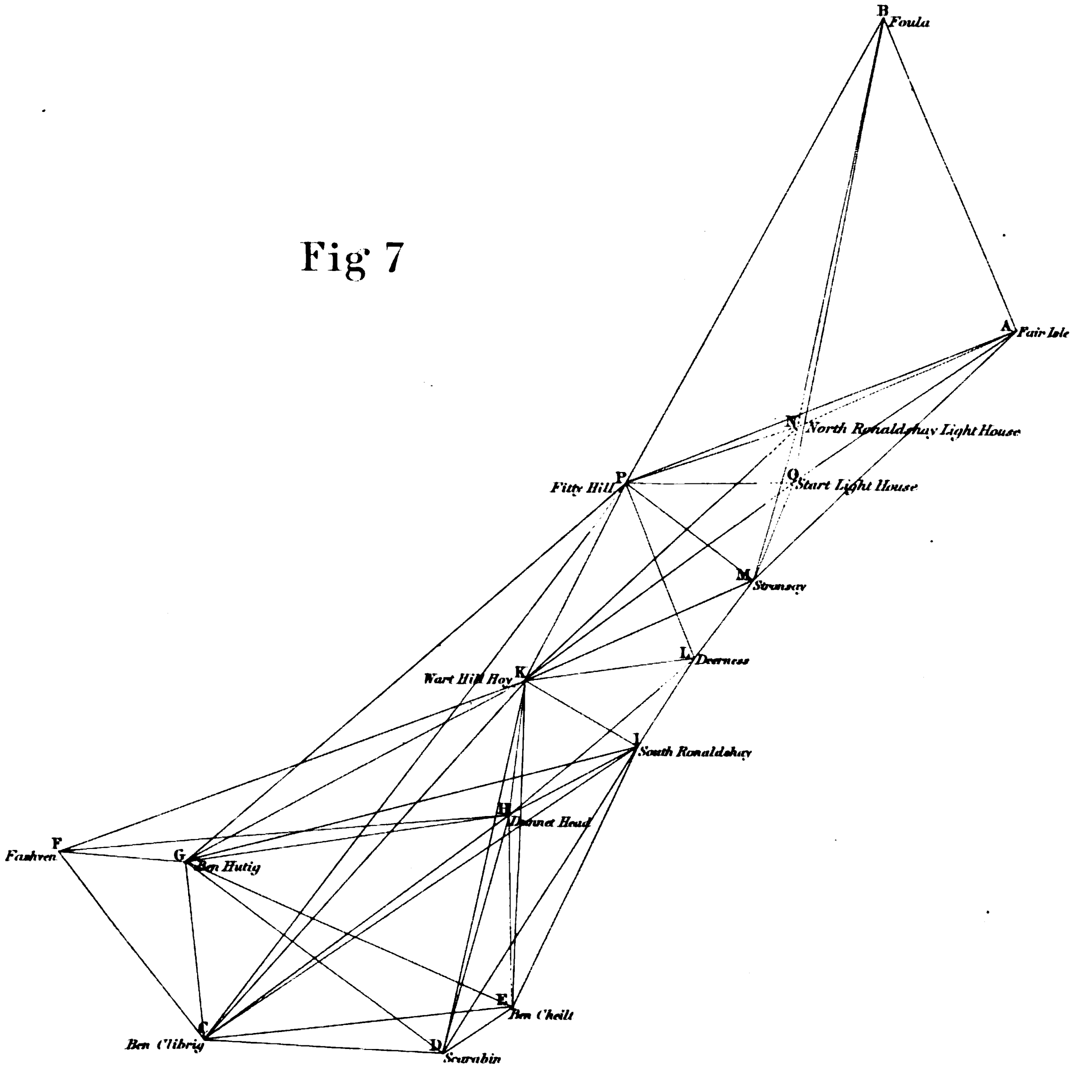
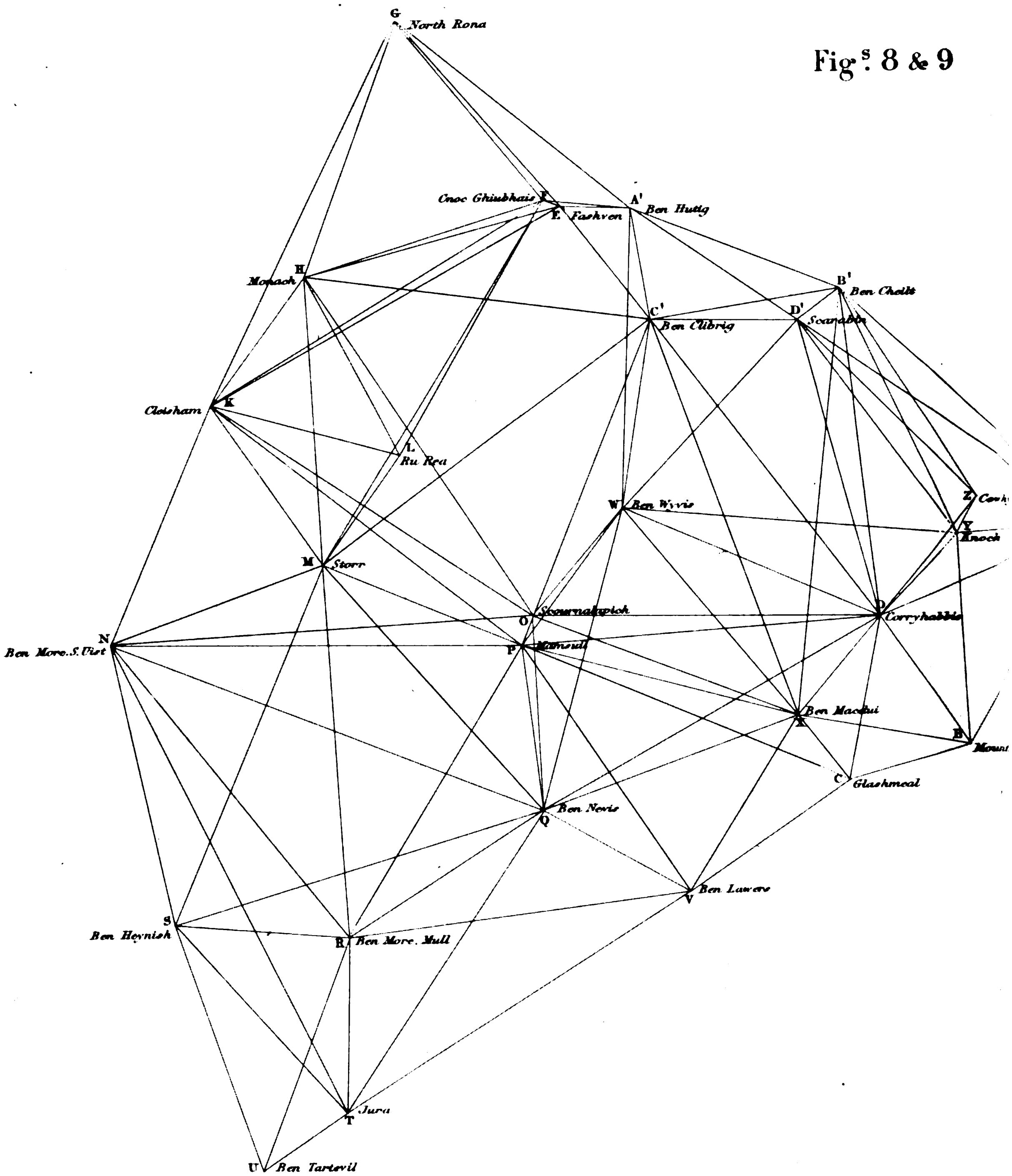

H Saxavord
G Balta
F Fetlar
D Yell
E Ronas
C Bressa
B Foula
A Fair Isle

Fig 7


B Foula
A Fair Isle
N North Ronaldshay Light House
P Fitty Hill
Q Start Light House
M Stronsay
L Deerness
K Wart Hill Hoy
I South Ronaldshay
H Dunnet Head
F Fashven
G Ben Hutig
E Ben Cheilt
C Ben Clibrig
D Scarabin

Fig^s. 8 & 9


G North Rona
Cnoc Ghiubhais F
E Fashven
A' Ben Hutig
H Monach
B' Ben Cheilt
C' Ben Clibrig
D' Scaraben
K Cleisham
L Ru Rea
W Ben Wyvis
Z Cor
Y
Knoch
M Storr
O Scournalapich
D Corryhabbie
N Ben More. S. Uist
P Mamsuil
X Ben Macdui
B Mount
C Glashmeal
Q Ben Nevis
V Ben Lawers
S Ben Heynish
R Ben More. Mull
T Jura
U Ben Tartevil

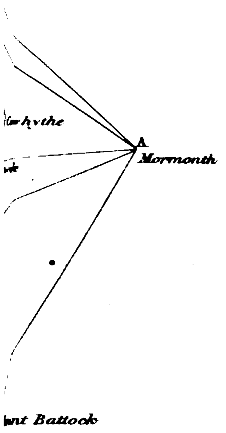
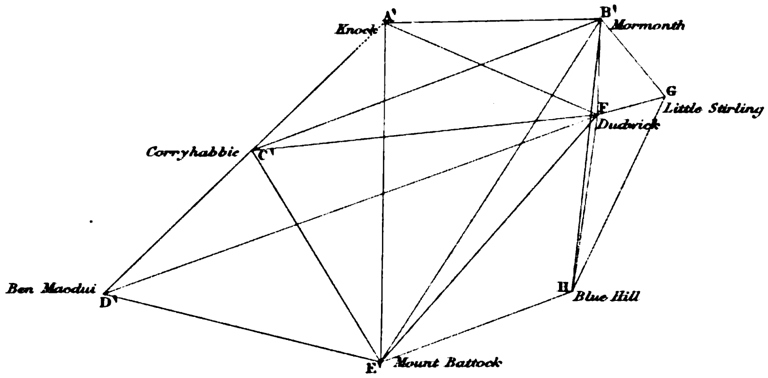
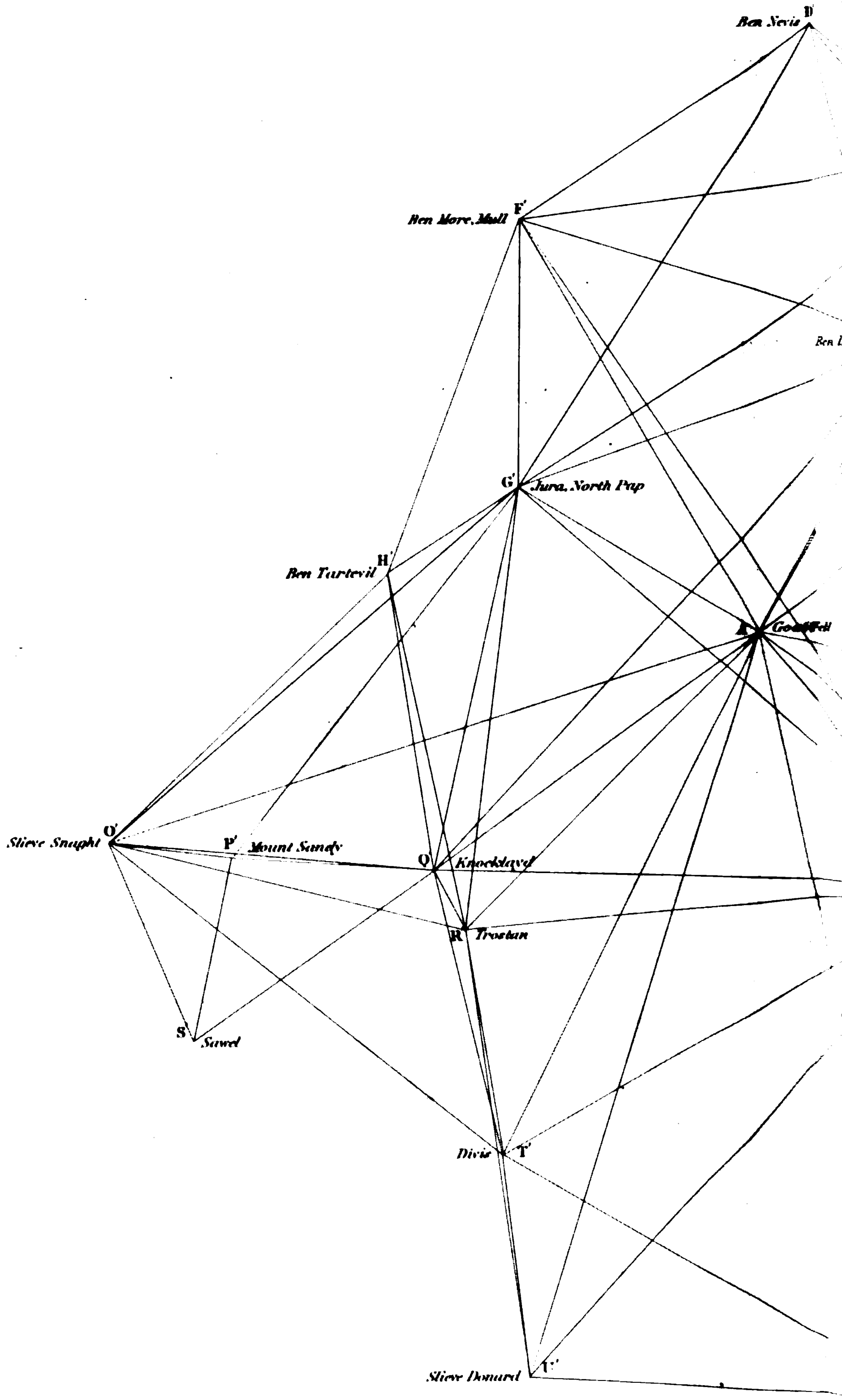
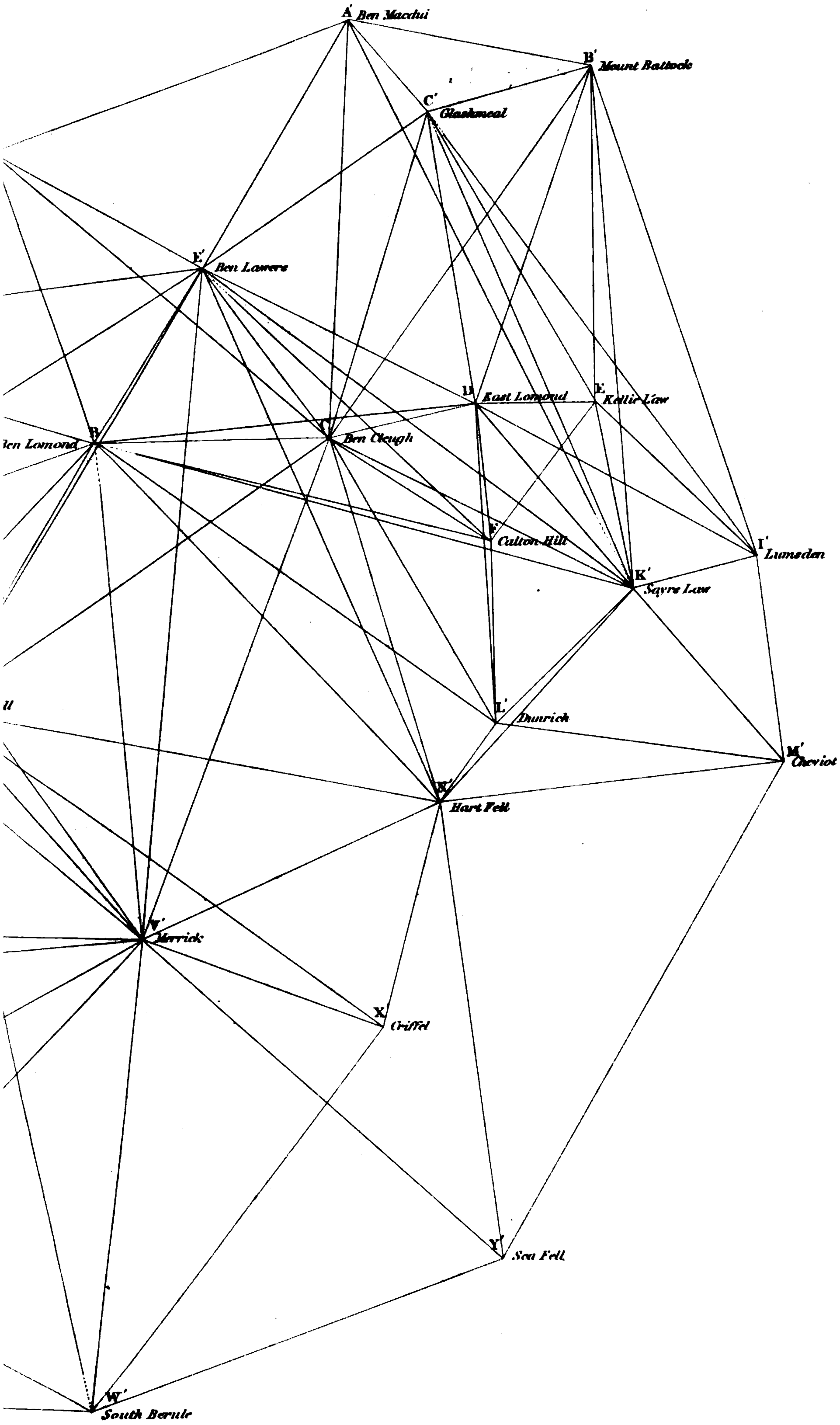

hythe
A
Mormonth
nt Battock

Fig:10


A'
Knock
B'
Mormonth
G
Little Stirling
F
Dudwick
Corryhabbie
C'
Ben Macdui
D'
H
Blue Hill
E
Mount Battock

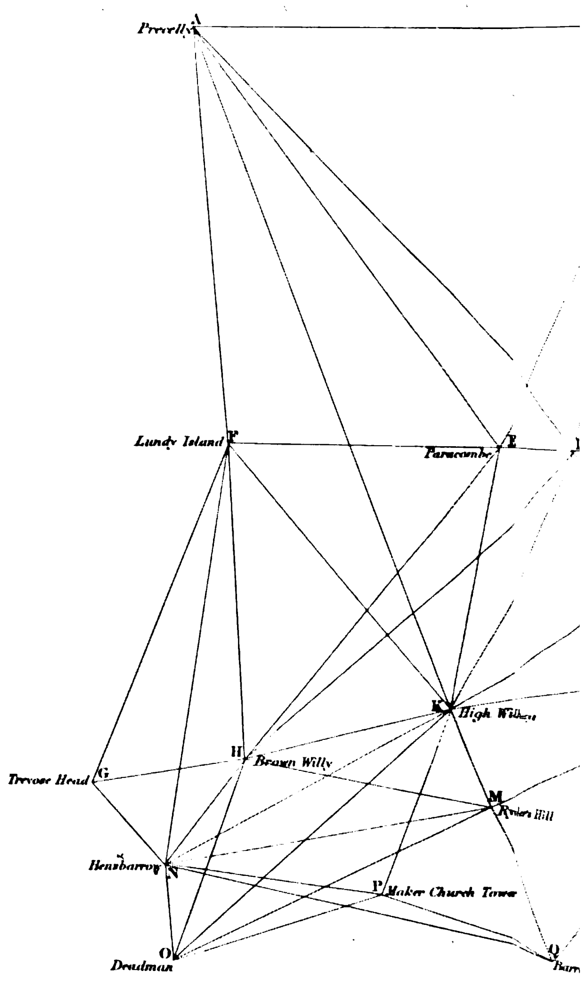
Figs. 11 & 35


D' Ben Nevis
F' Ben More, Mull
Ben L
G' Jura, North Pap
H' Ben Tartevil
K Goatfell
O' Slieve Snaght
P' Mount Sandy
Q Knocklayd
R' Trostan
S' Sawel
Divis T'
Slieve Donard U'


A' Ben Macdui
B' Mount Battock
C' Glashmeal
E' Ben Lawers
D East Lomond
E Kellie Law
B
Ben Lomond
C' Ben Cleugh
F' Calton Hill
I' Lumsden
K' Sayrs Law
ll
L' Dunrich
M' Cheviot
N' Hart Fell
V' Merrick
X' Criffel
Y' Sea Fell
W' South Berule

PRINCIPAL TRIANGUL

Fig.12



ANGULATION PLATE IX.

12

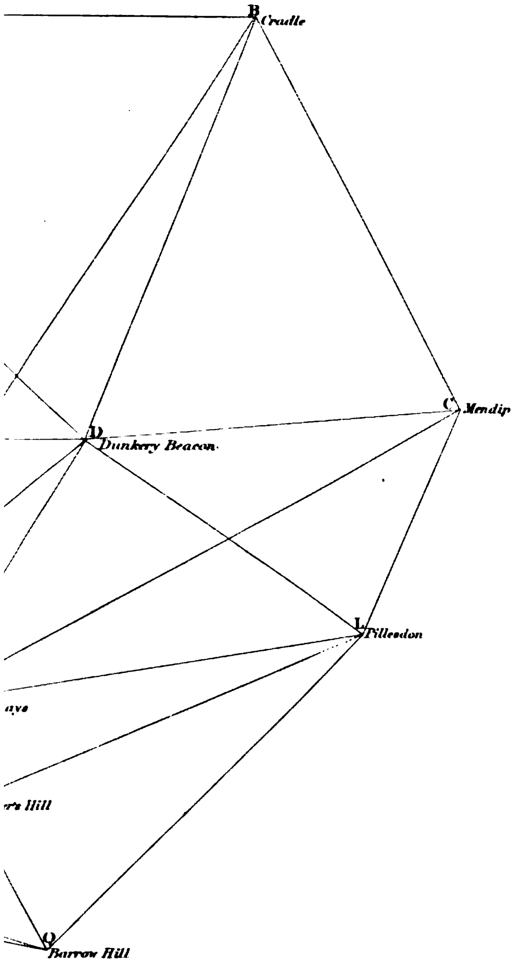


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Fig.s 14 & 26′

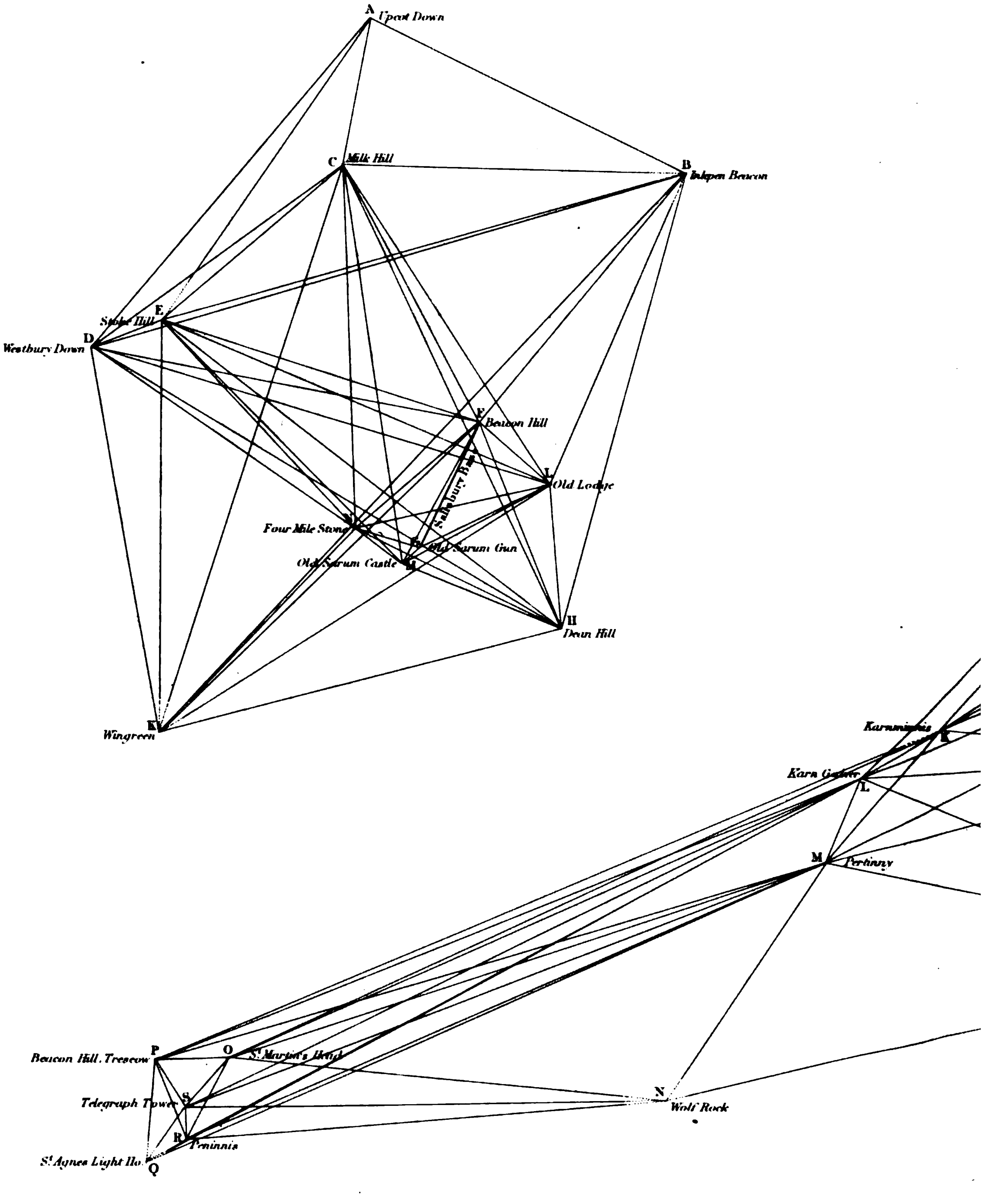
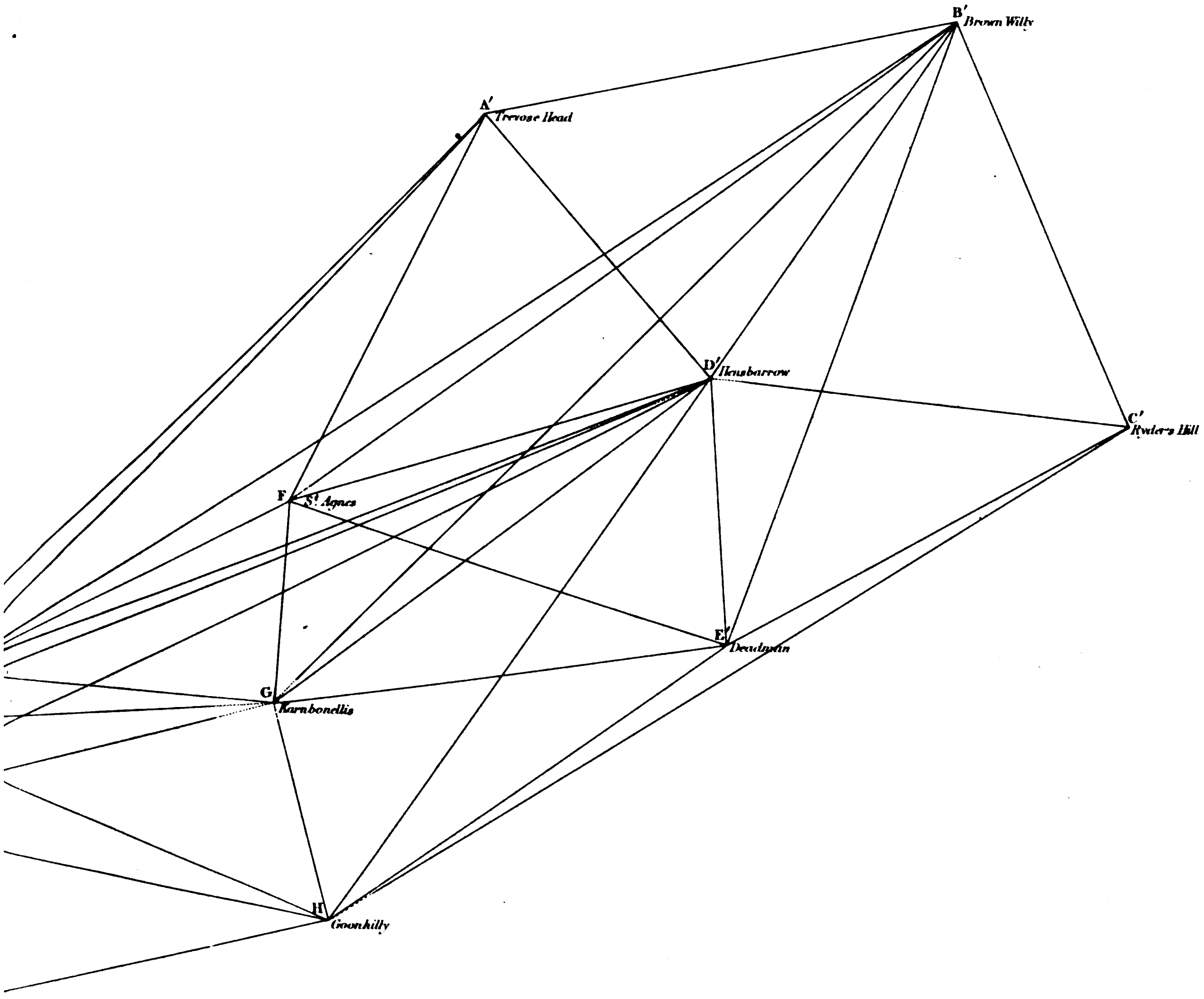
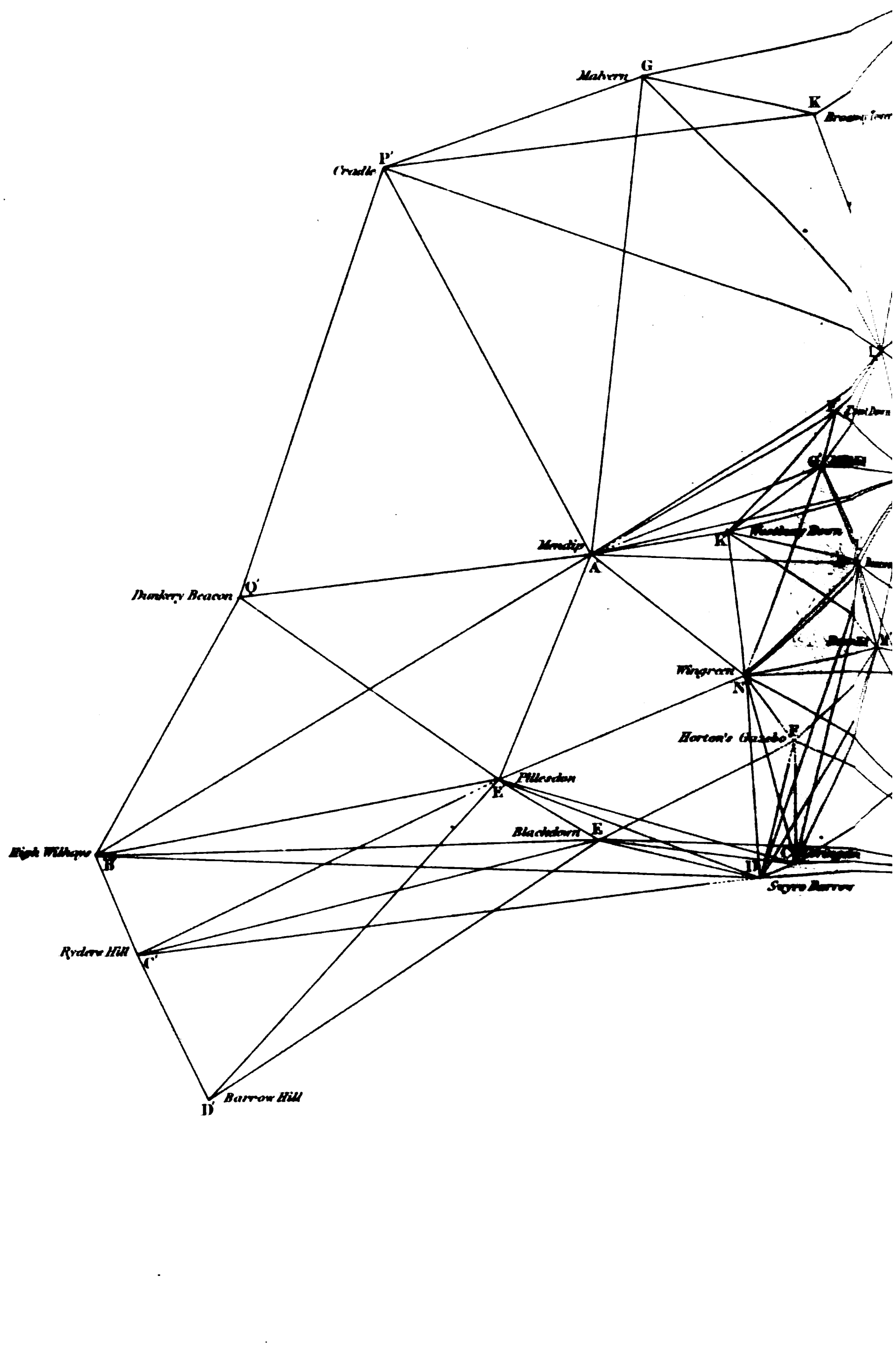


Fig. 13

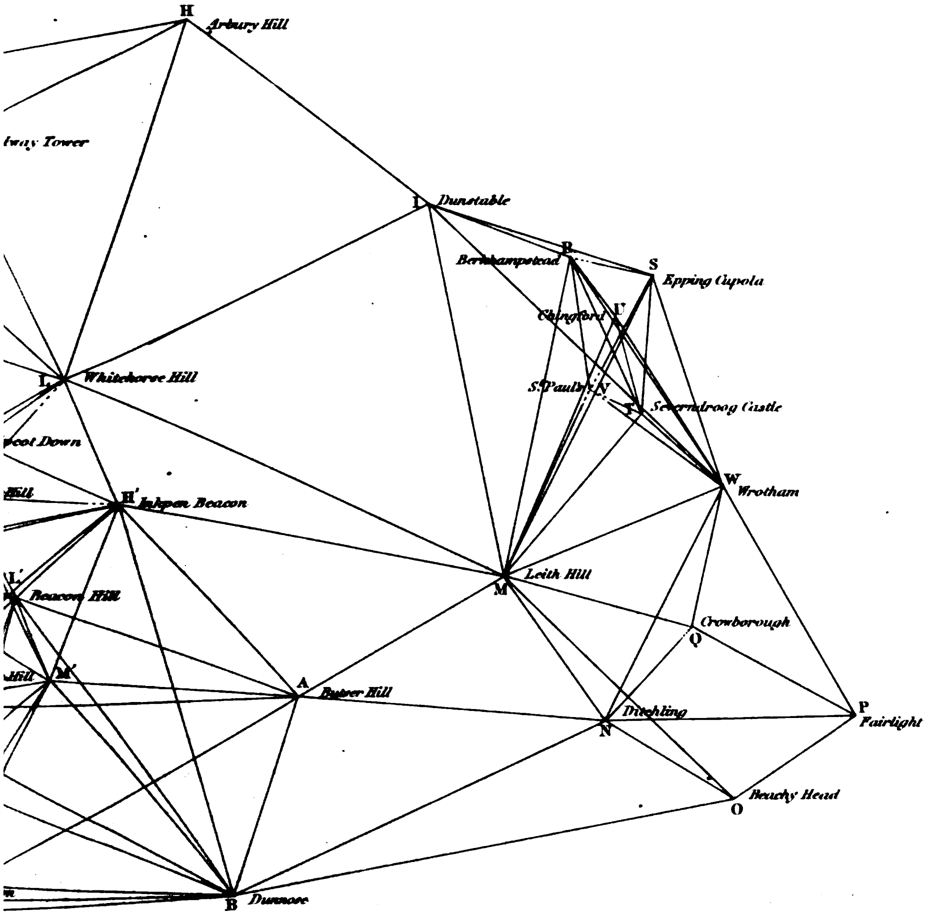

B′
Brown Willy
A′
Trevose Head
D′
Hensbarrow
C′
Ryder's Hill
F
St Agnes
E′
Deadman
G
Karnbonellis
H
Goonhilly

PRINCIPAL TRIANG

Fig.s 1

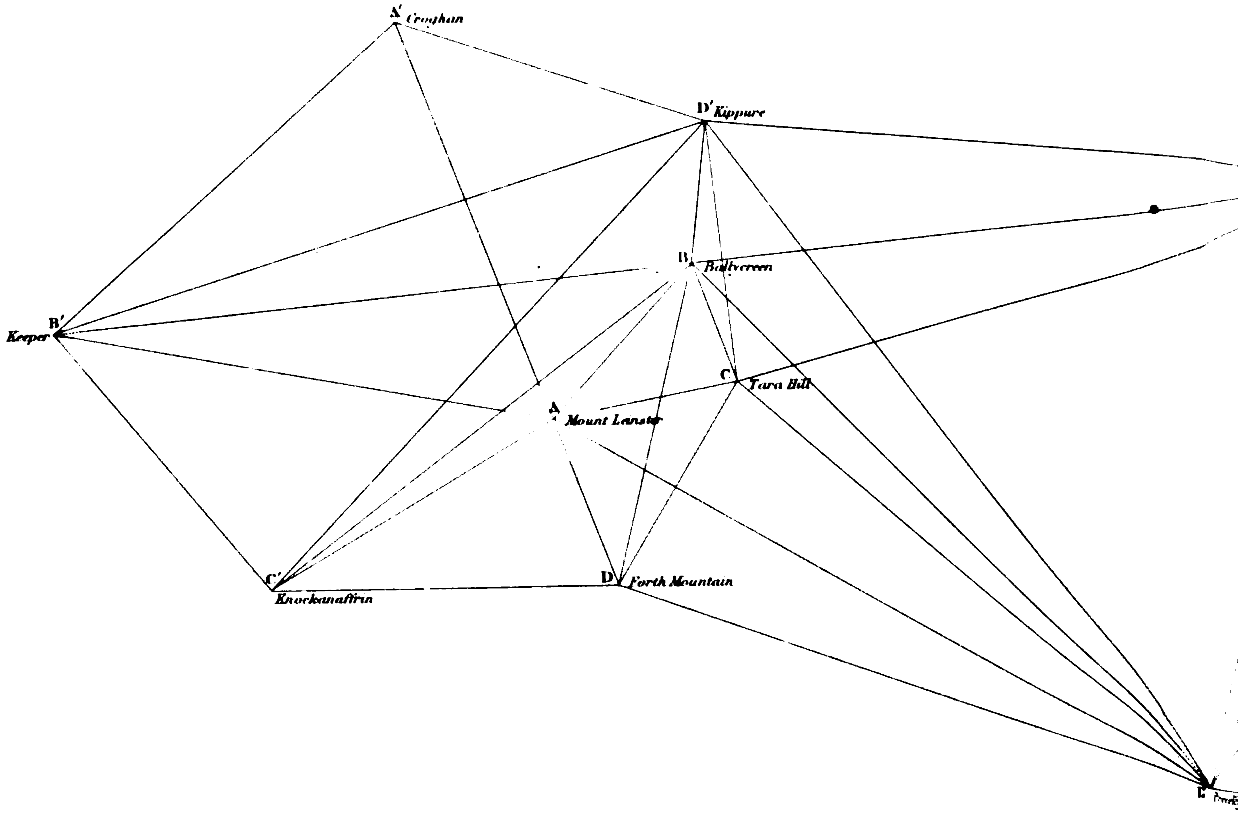


g.^{s} 15 & 16


H
Arbury Hill
lway Tower
I
Dunstable
R
Berkhampstead
S
Epping Cupola
U
Chingford
S.t Paul's
N'
T
Severndroog Castle
L
Whitehorse Hill
cot Down
W
Wrotham
Hill
H'
Inkpen Beacon
M
Leith Hill
L'
Beacon Hill
Q
Crowborough
Hill
M'
A
Butser Hill
N
Ditchling
P
Fairlight
O
Beachy Head
B
Dunnose

PRINCIPAL TRIAN

Fig. 1



TRIANGULATION

PLATE XII.

g. 17

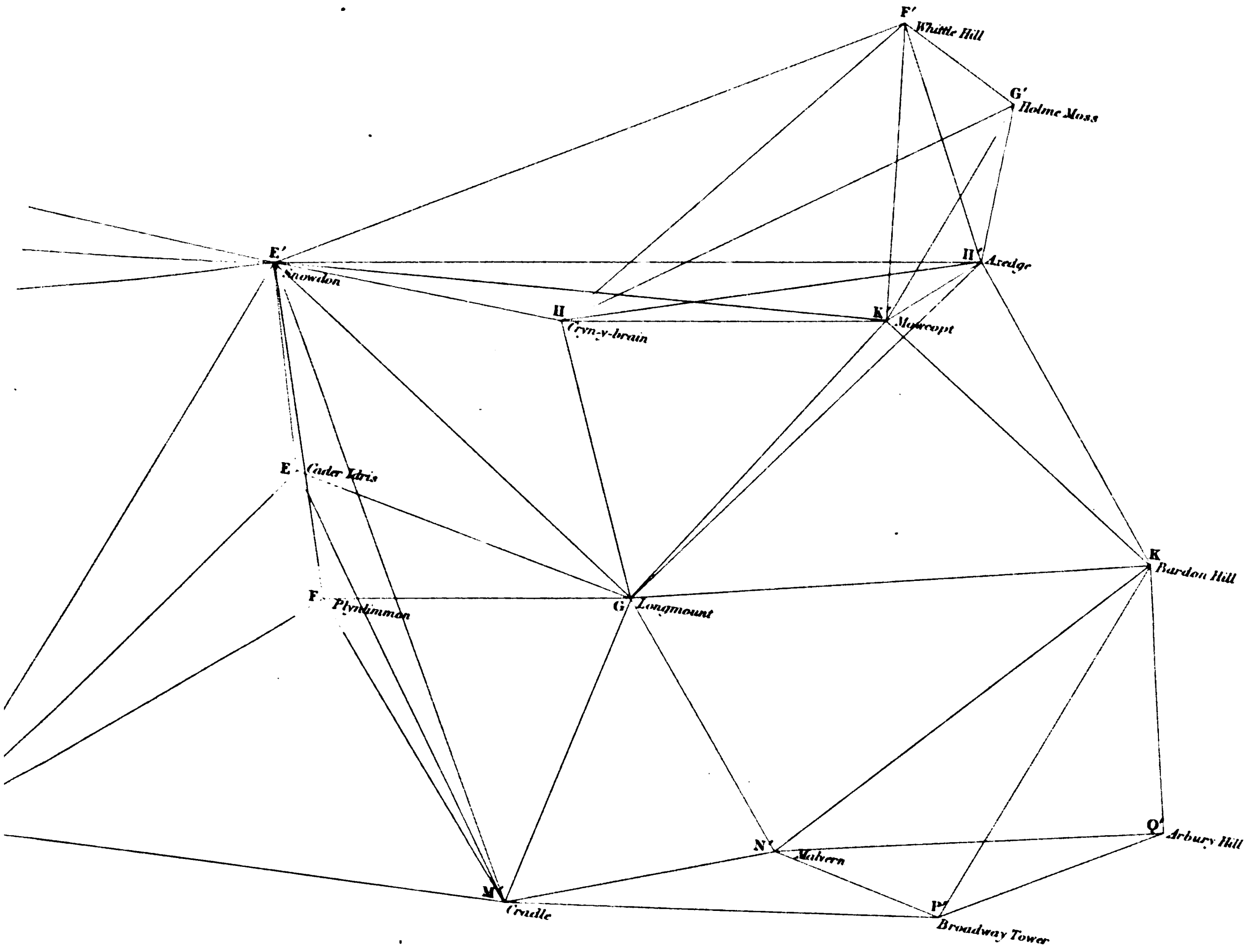


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Fig. 18

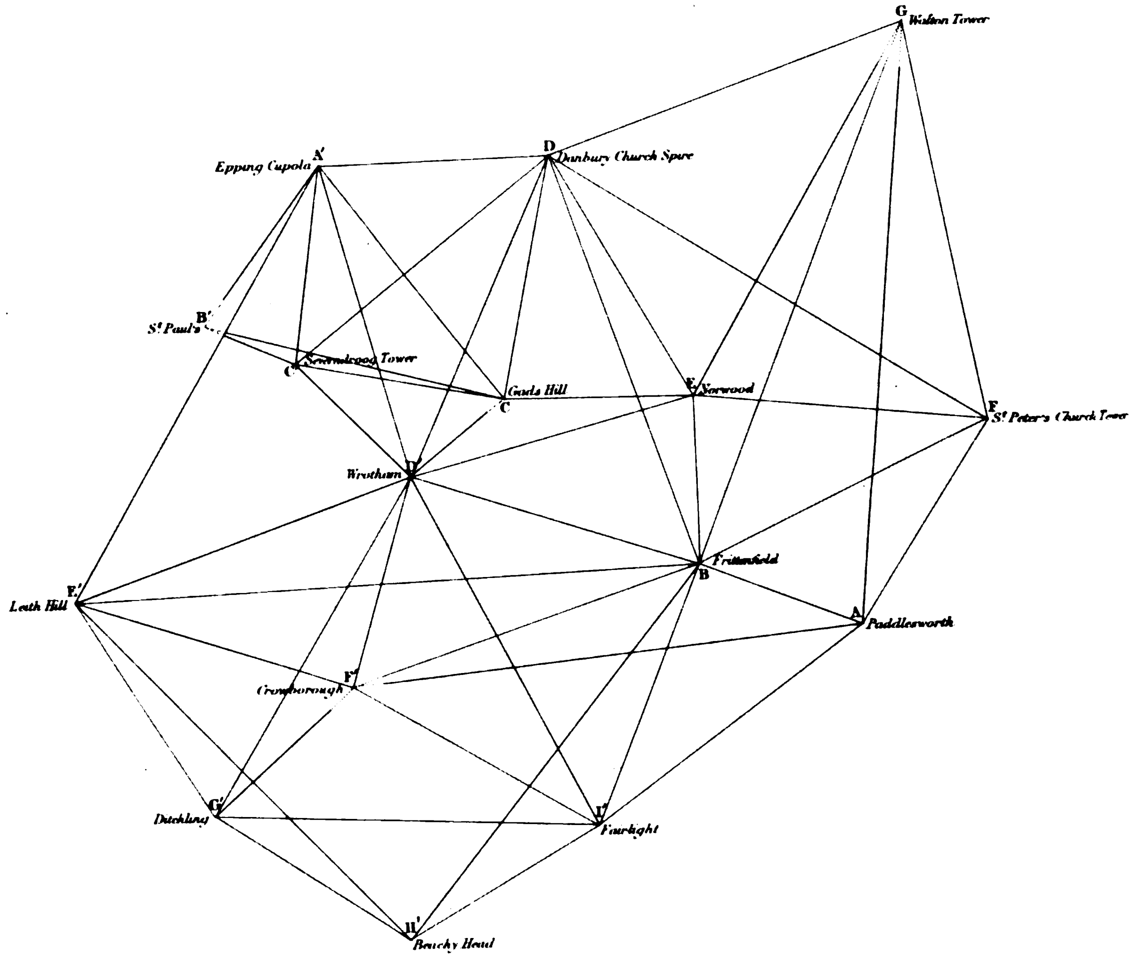

G Walton Tower
D Danbury Church Spire
A′ Epping Cupola
B′ S.t Paul's
C′ Severndroog Tower
C Gads Hill
E Norwood
F S.t Peter's Church Tower
D′ Wrotham
B Frittenfield
E′ Leith Hill
A Paddlesworth
F′ Crowborough
G′ Ditchling
I′ Fairlight
H′ Beachy Head

Fig. 19

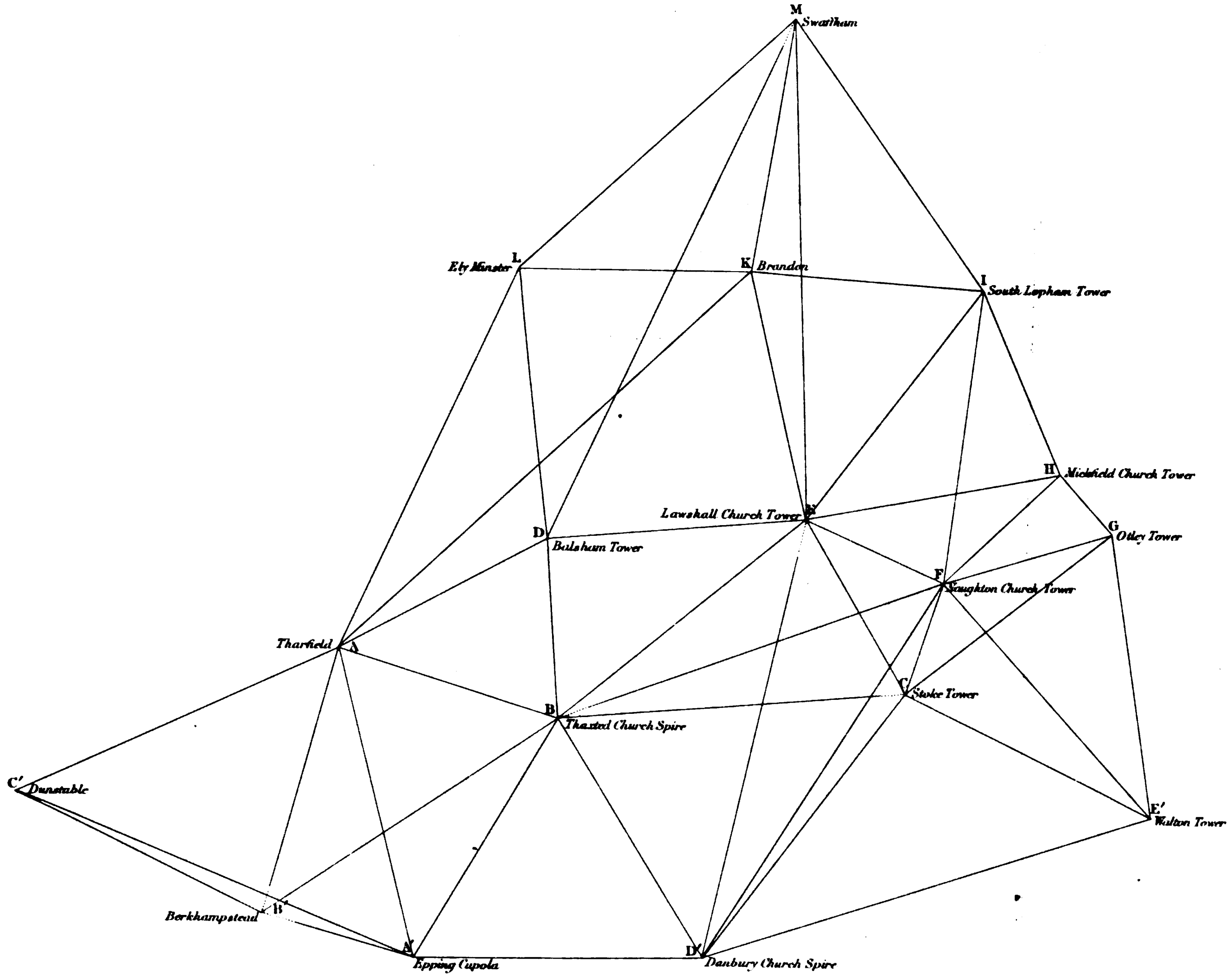
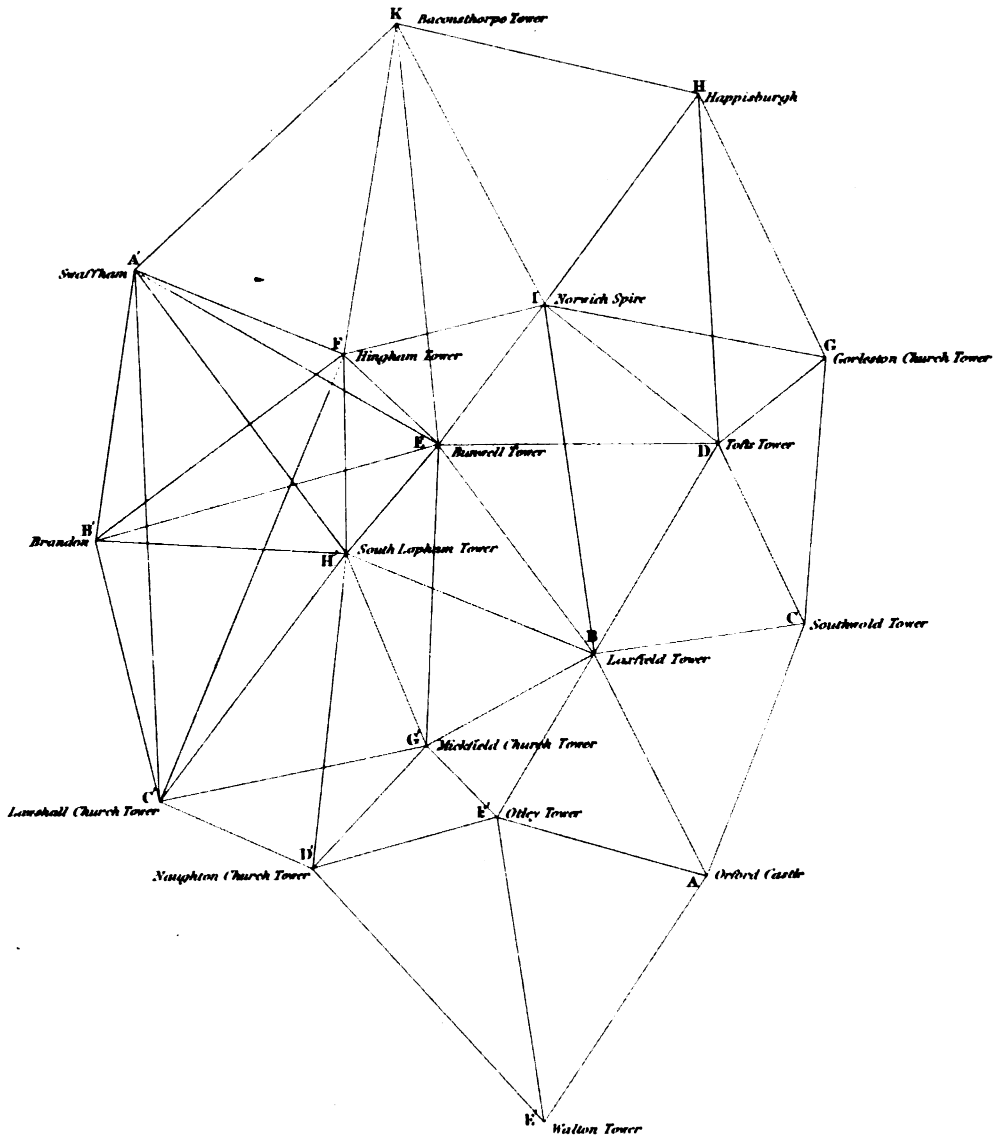

M
Swaffham
L
Ely Minster
K
Brandon
I
South Lopham Tower
H
Mickfield Church Tower
E
Lawshall Church Tower
G
Otley Tower
D
Bulsham Tower
F
Saughton Church Tower
Tharfield
A
C
Stoke Tower
B
Thaxted Church Spire
C′
Dunstable
E′
Walton Tower
Berkhampstead
B′
A′
Epping Cupola
D′
Danbury Church Spire

Fig. 20


K Baconsthorpe Tower
H Happisburgh
A' Swaffham
I Norwich Spire
F Hingham Tower
G Gorleston Church Tower
E Bunwell Tower
D Tofts Tower
B' Brandon
H' South Lopham Tower
C Southwold Tower
B Laxfield Tower
G' Mickfield Church Tower
C' Lawshall Church Tower
F' Otley Tower
D' Naughton Church Tower
A Orford Castle
E' Walton Tower

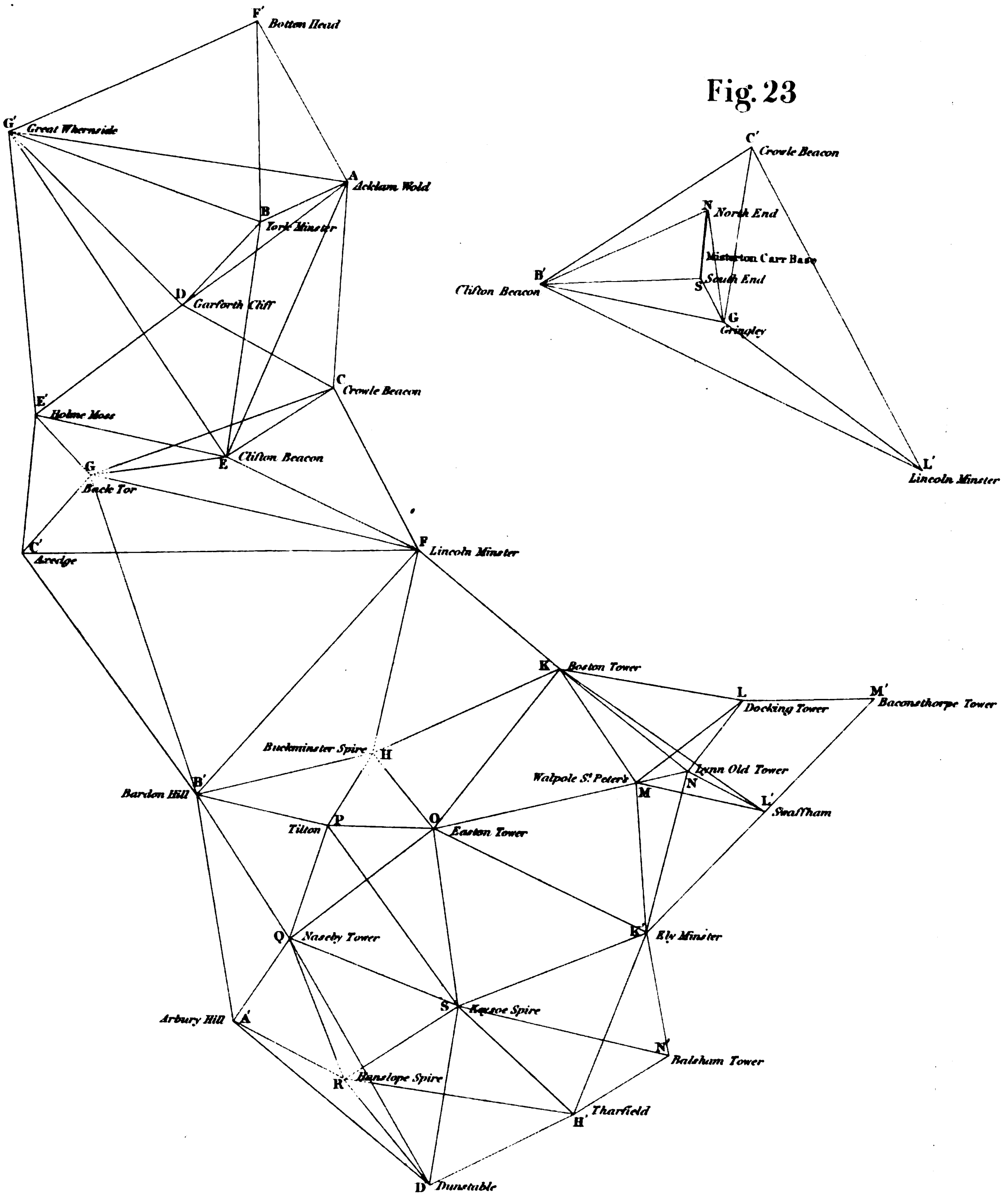


Fig. 21

Fig. 23

F' Botton Head
G' Great Whernside
A Acklam Wold
B York Minster
D Garforth Cliff
C Crowle Beacon
E' Holme Moss
G Back Tor
E Clifton Beacon
C' Axedge
F Lincoln Minster
K Boston Tower
L Docking Tower
M' Baconsthorpe Tower
Buckminster Spire H
Bardon Hill B'
Walpole S.t Peter's M
N Lynn Old Tower
L' Swaffham
Tilton P
O Easton Tower
Q Naseby Tower
K' Ely Minster
S Keysoe Spire
Arbury Hill A'
N' Balsham Tower
R Hanslope Spire
H' Tharfield
D Dunstable
C' Crowle Beacon
N North End
Misterton Carr Base
S South End
G Gringley
B' Clifton Beacon
L' Lincoln Minster

Fig. 22

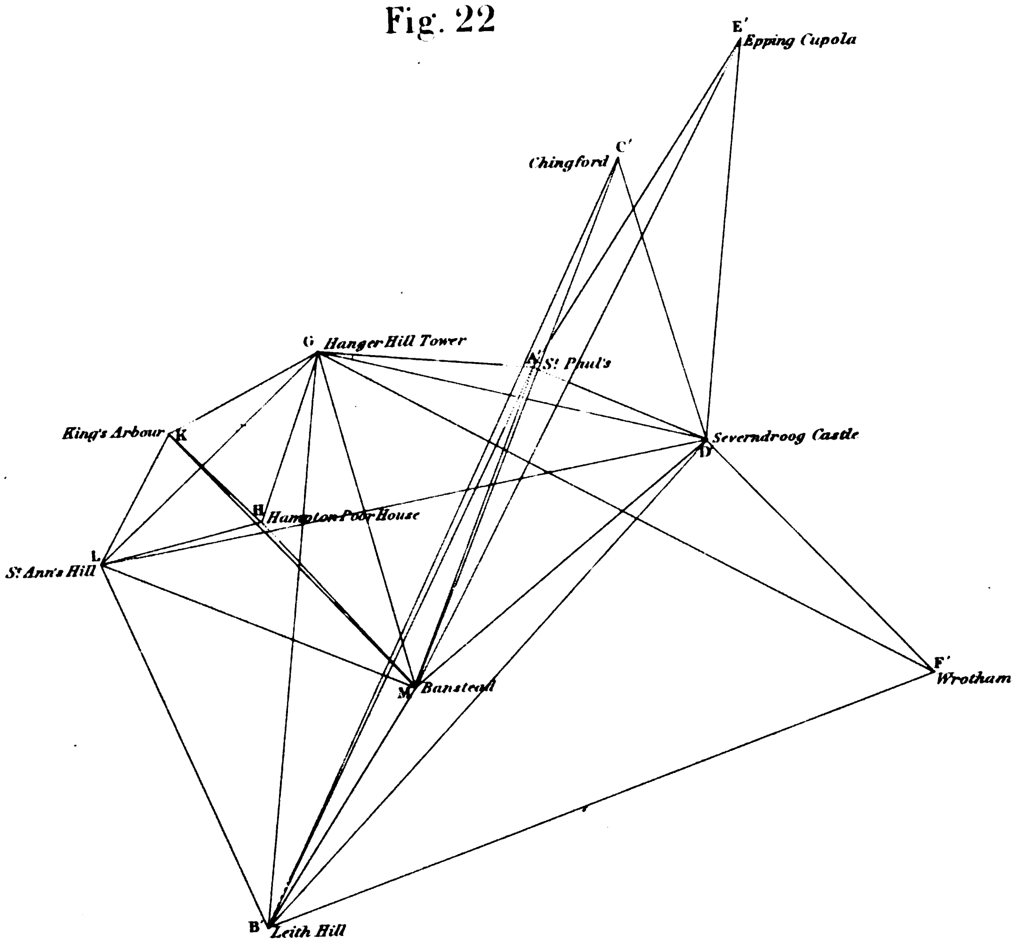

E′
Epping Cupola
C′
Chingford
G
Hanger Hill Tower
A
St Paul's
King's Arbour
K
Severndroog Castle
D
H
Hampton Poor House
L
St Ann's Hill
F′
Wrotham
M
Banstead
B′
Leith Hill

Fig. 24

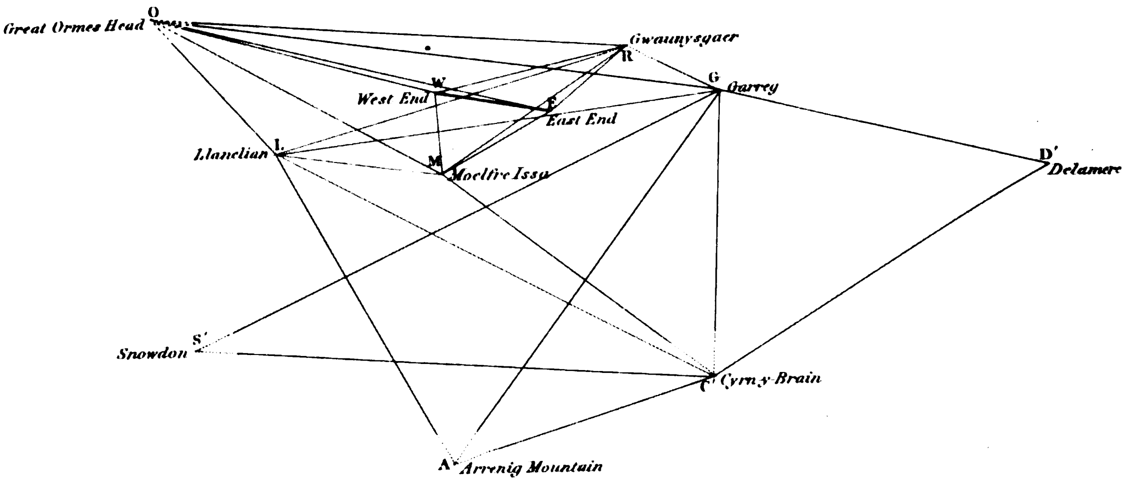

O
Great Ormes Head
Gwaunysgaer
R
G
Garreg
W
West End
E
East End
L
Llanelian
M
Moelfre Issa
D′
Delamere
S′
Snowdon
C
Cyrn y Brain
A
Arrenig Mountain

Fig. 25

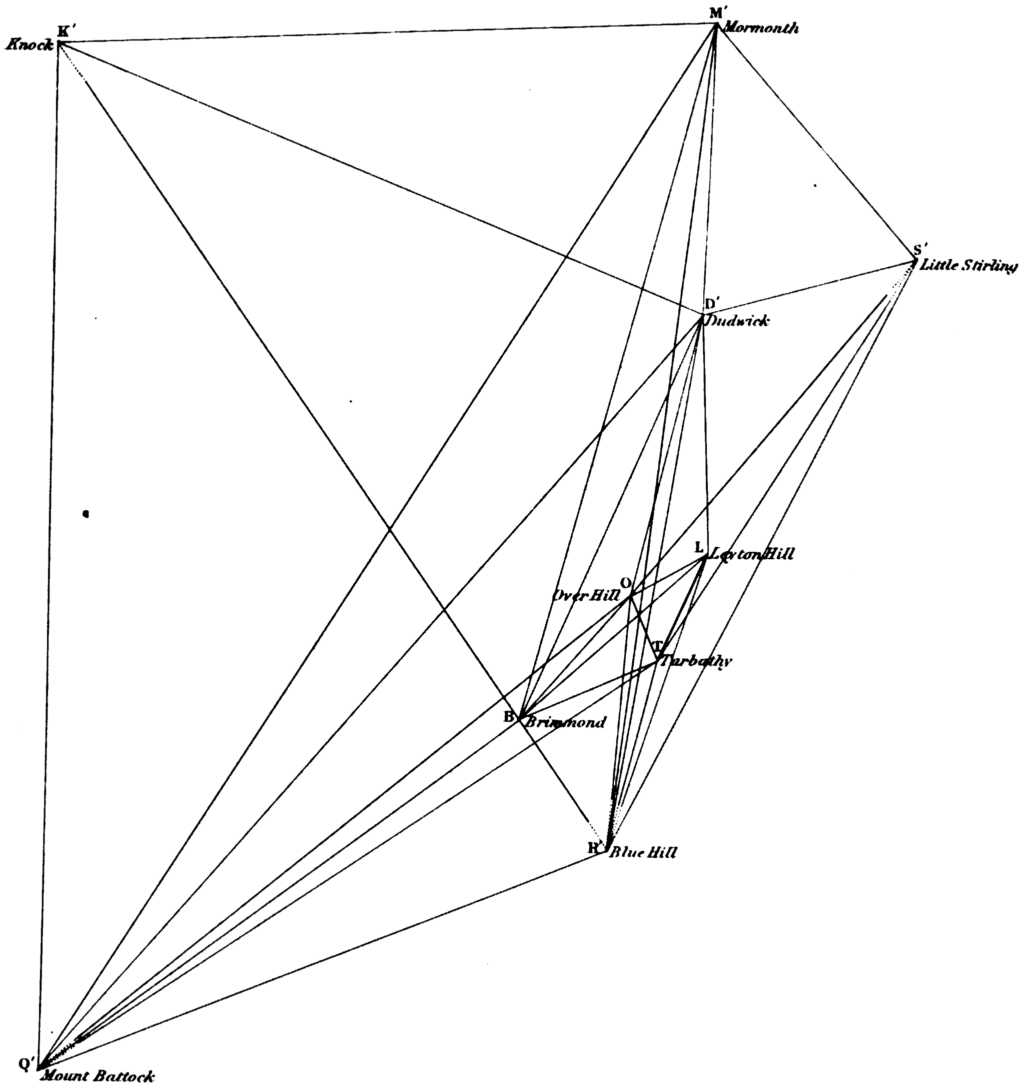

K'
Knock
M'
Mormonth
S'
Little Stirling
D'
Dudwick
L
Leyton Hill
O
Over Hill
T
Tarbathy
B
Brimmond
R'
Blue Hill
Q'
Mount Battock

Fig. 27

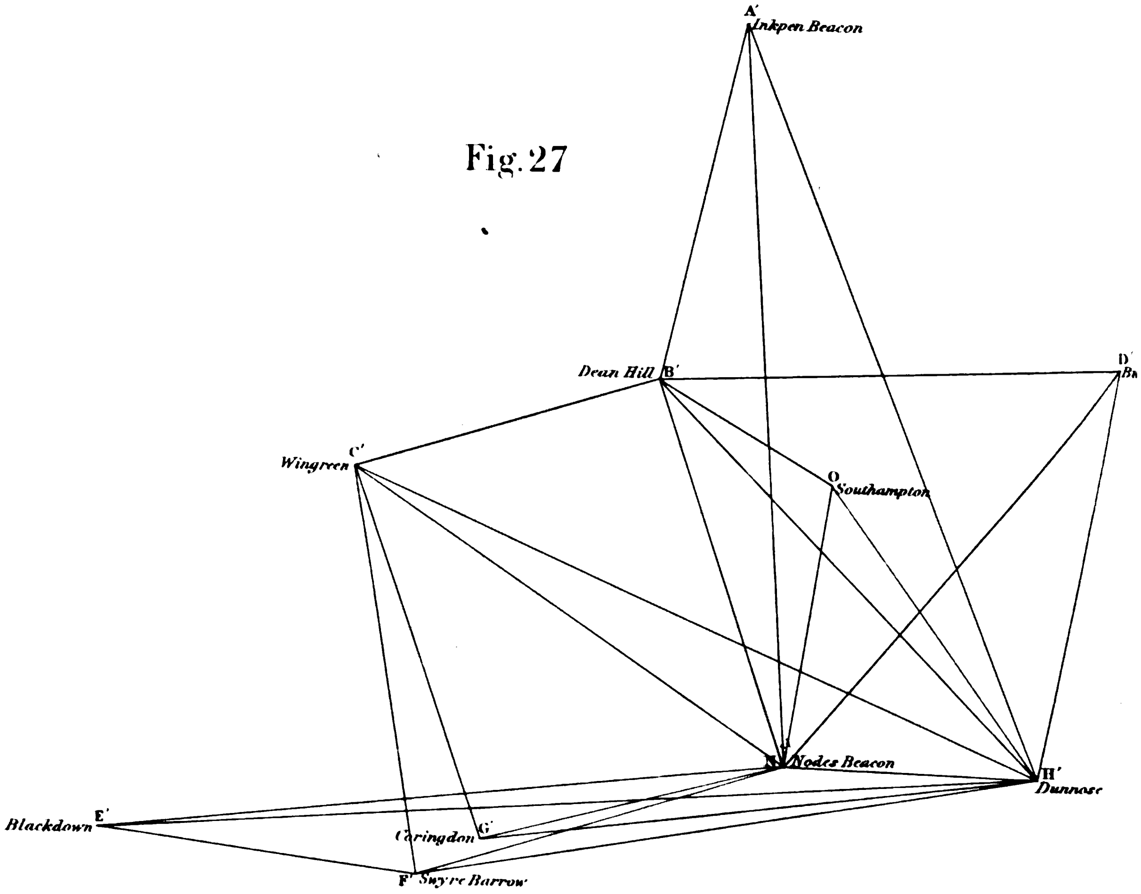

A′
Inkpen Beacon
Dean Hill
B′
D′
Br
Wingreen
C′
O
Southampton
I
K
Nodes Beacon
H′
Dunnose
E′
Blackdown
Caringdon
G′
F′
Swyre Barrow

Fig. 28

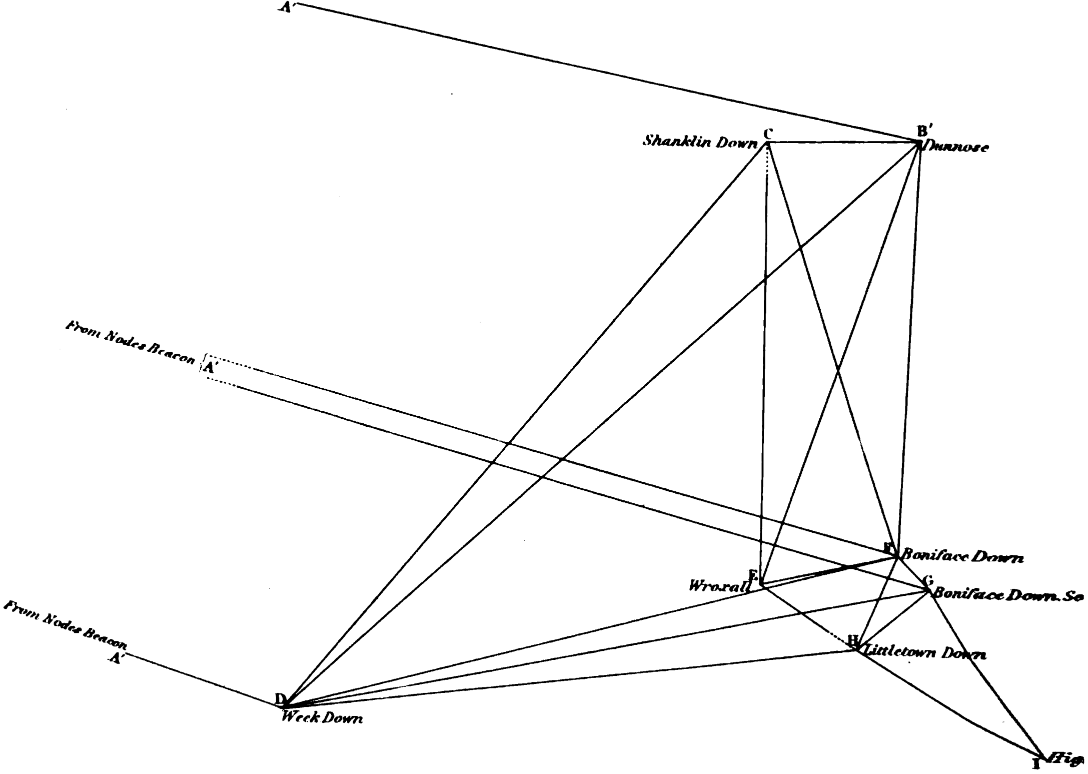

From Nodes Beacon
A′
Shanklin Down
C
B′
Dunnose
From Nodes Beacon
A′
F
Boniface Down
E
Wroxall
G
Boniface Down So
H
Littletown Down
From Nodes Beacon
A′
D
Week Down
I
Hig

Fig. 29

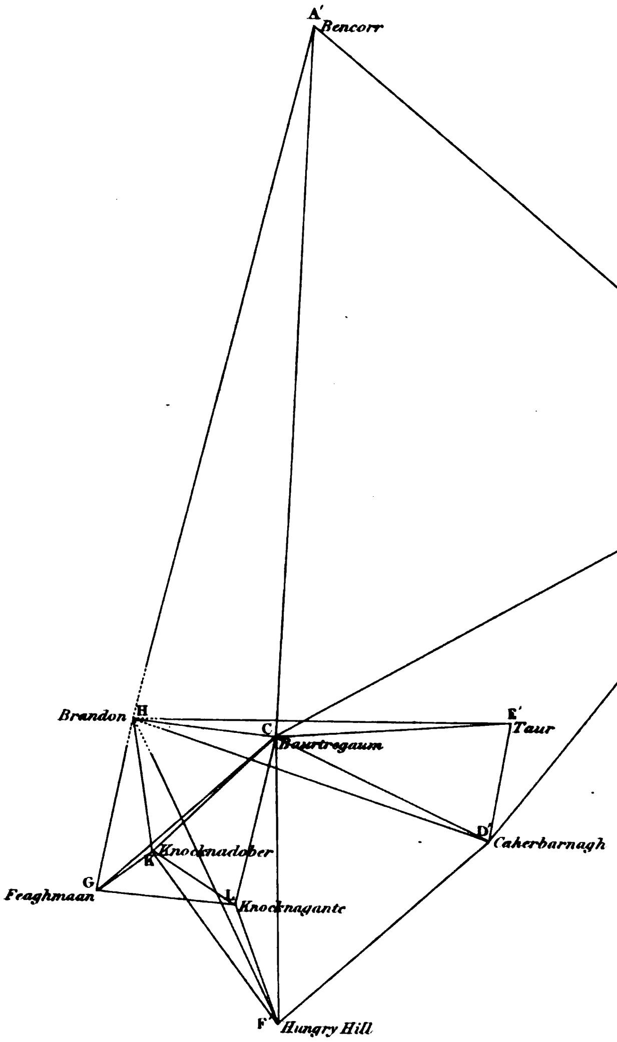

A'
Bencorr
B'
Keeper
Brandon
H
C
Baurtregaum
E'
Taur
D'
Caherbarnagh
K
Knocknadober
G
Feaghmaan
L
Knocknagante
F'
Hungry Hill

Fig. 30

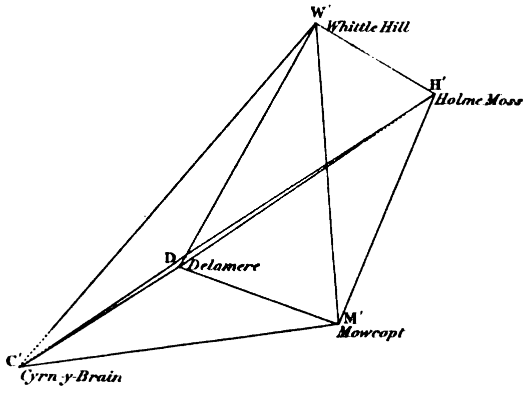

W'
Whittle Hill
H'
Holme Moss
D
Delamere
M'
Mowcopt
C'
Cyrn-y-Brain

Fig. 32

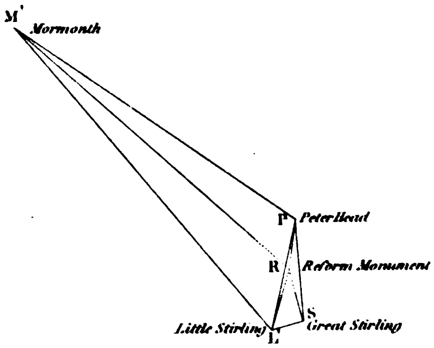


Fig. 33

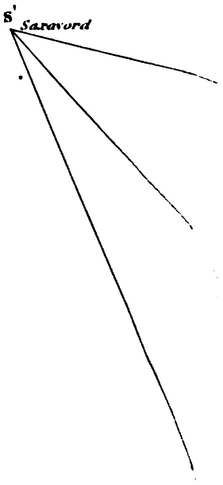
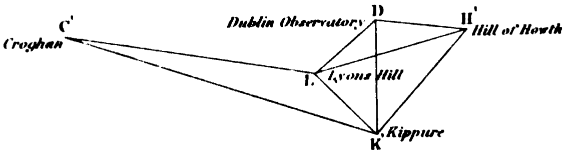


Fig. 36



33

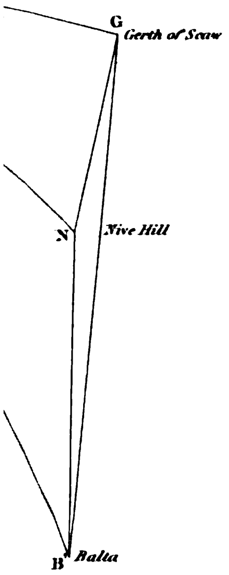


Fig. 34

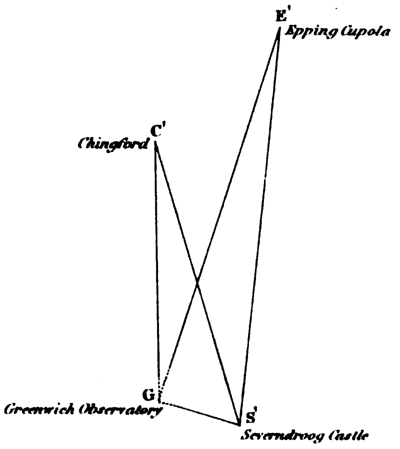


Fig. 37

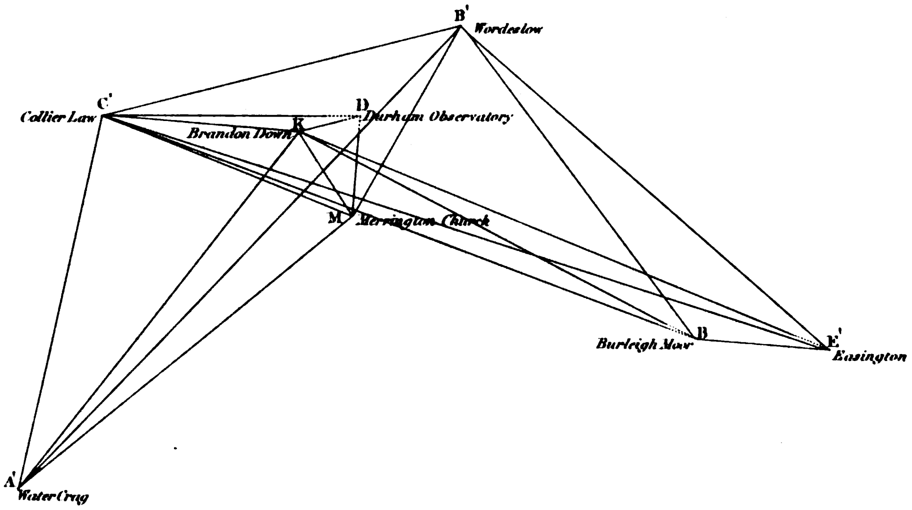
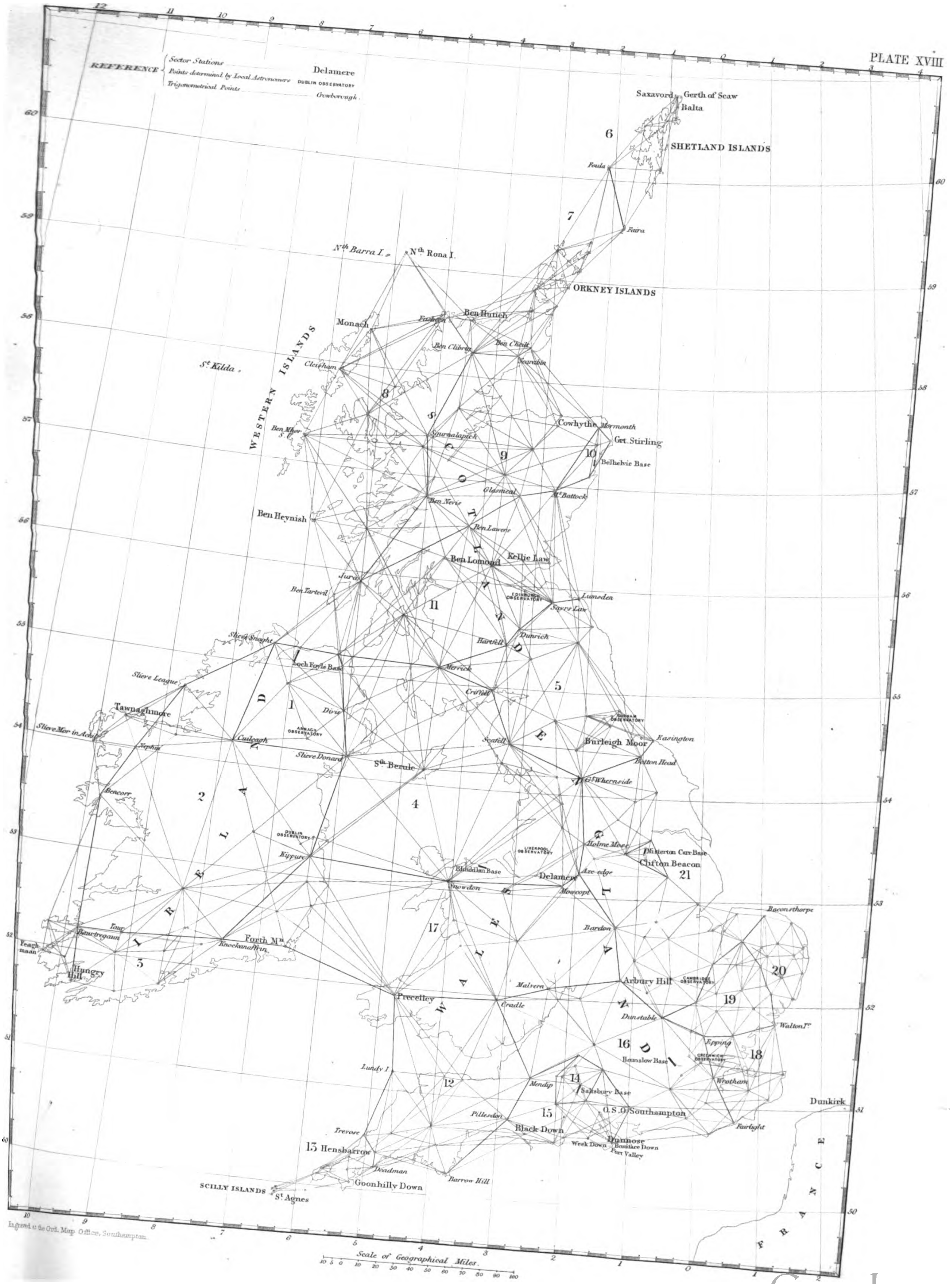


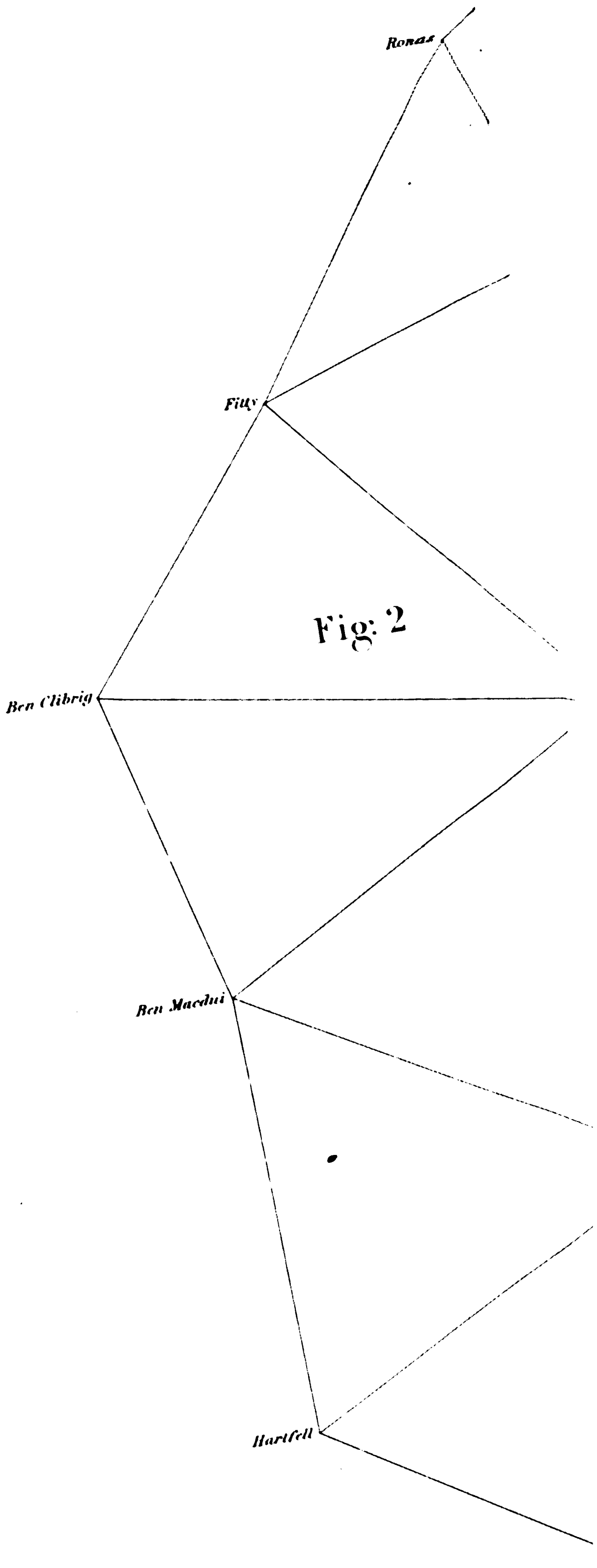
PLATE XVIII



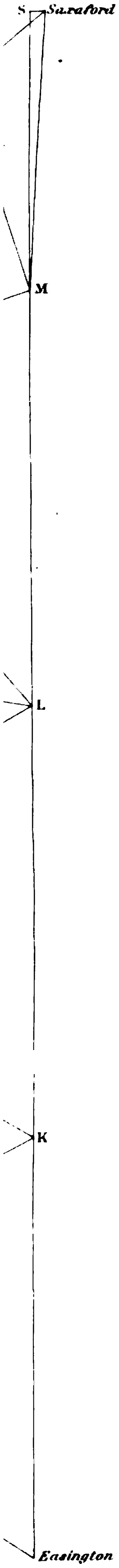
Engraved at the Ord. Map Office, Southampton.

PRINC

Fig: 2



IPAL TRIANGULATION



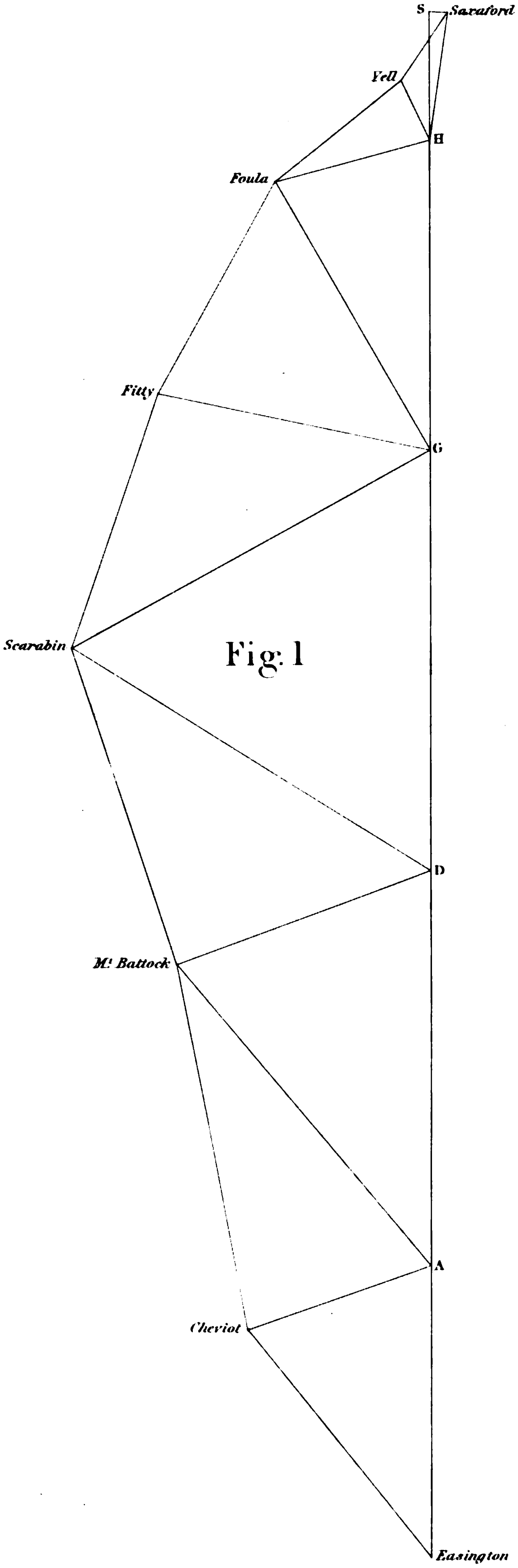
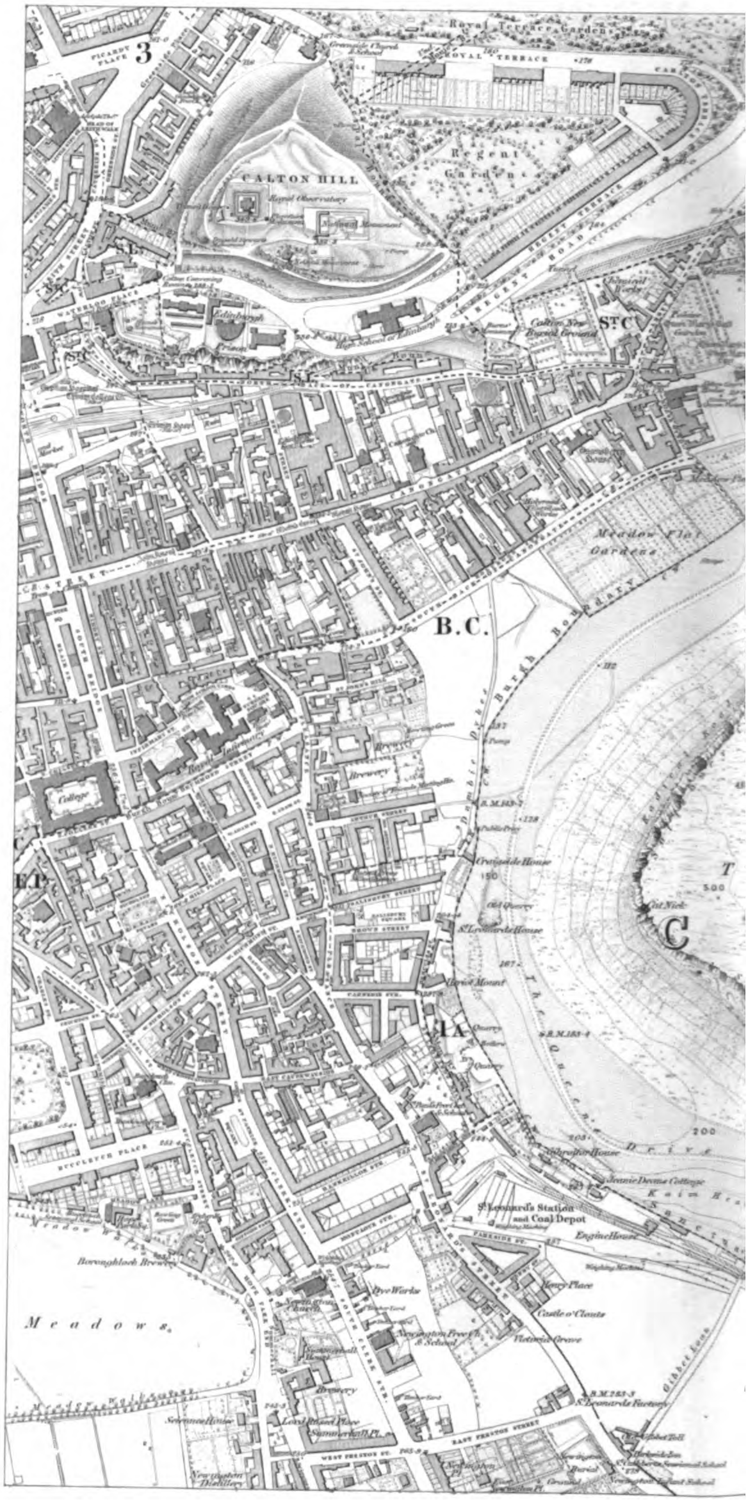
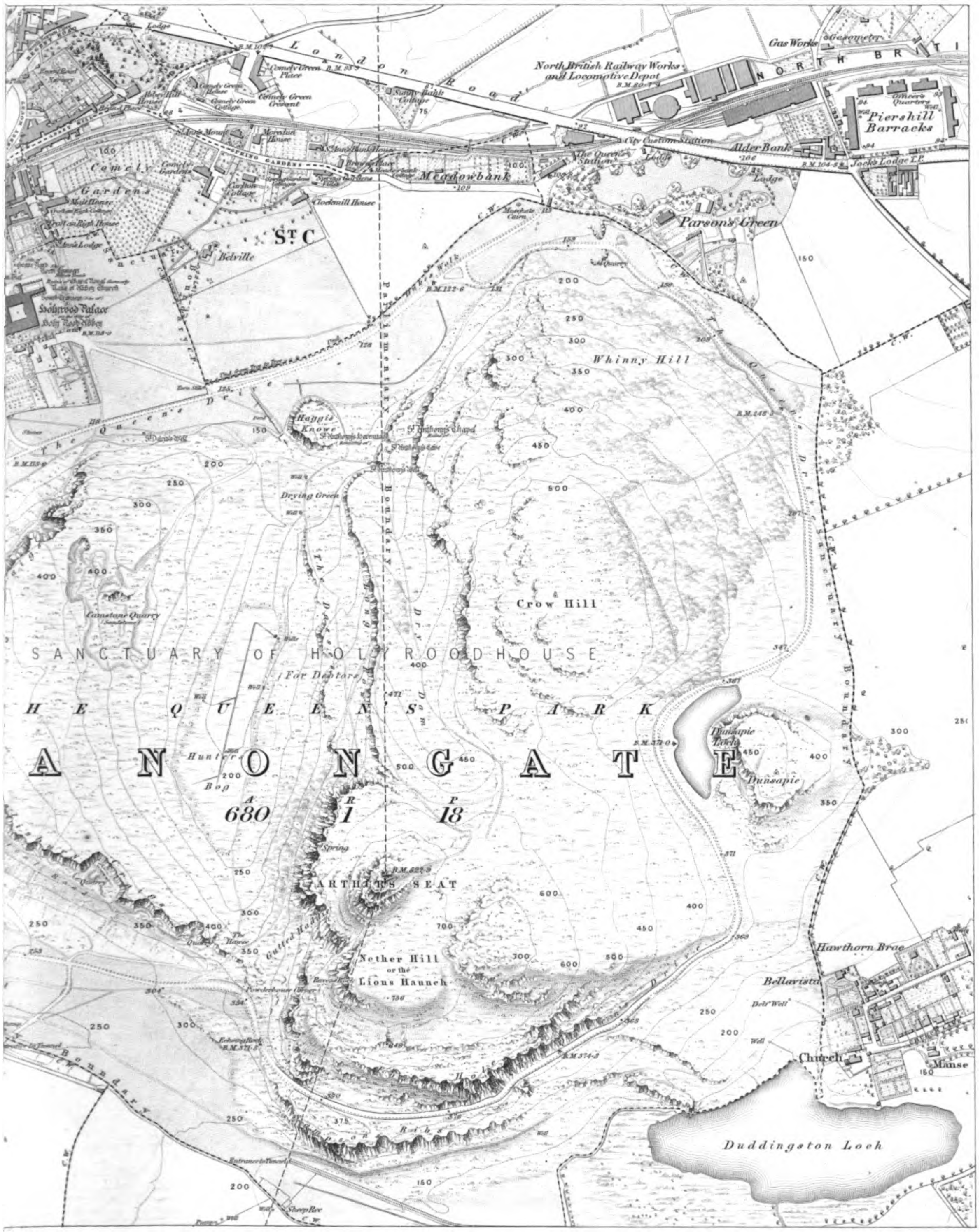


Fig. 1

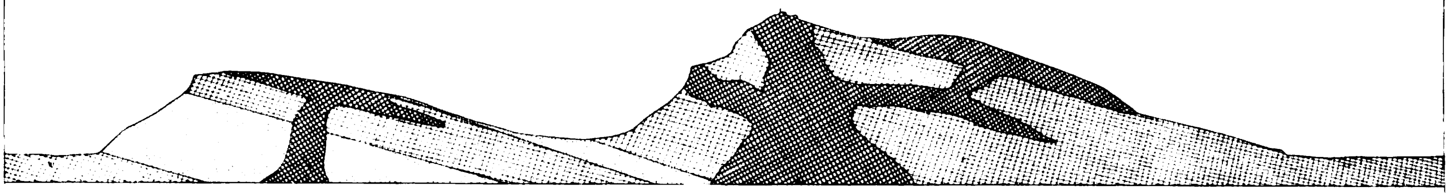

3
PICARDY PLACE
Royal Terrace Gardens
ROYAL TERRACE
CALTON HILL
Royal Observatory
Regent Gardens
REGENT ROAD
WATERLOO PLACE
Calton New Burial Ground
S^t C
Meadow Flat Gardens
B.C.
Burgh Boundary
College
E.P.
Brewery
St Leonard's House
Quarry
1A
The Queen's Drive
Cat Nick
C
T
Gibraltar House
Jeanie Deans Cottage
Kaim Head
S^t Leonard's Station and Coal Depot
Engine House
PARKSIDE ST.
ST LEONARD'S STREET
Weighing Machine
Henry Place
Castle o' Clouts
Victoria Grove
Newington Free Ch. & School
Dye Works
SOUTH CLERK STR.
BUCCLEUCH PLACE
Boroughloch Brewery
Meadows
Meadow Walk
Brewery
Lord Russel Place
Summerhall Pl.
EAST PRESTON STREET
WEST PRESTON ST.
Newington Distillery
S^t Leonard's Factory
Gibbet Loan
Gibbet Toll
Newington Burial Ground
Newington Infant School
200


London Road
North British Railway Works and Locomotive Depot
Gas Works
Gasometer
NORTH BRITISH
Piershill Barracks
Officers' Quarters
City Custom Station
Alder Bank
Jocks Lodge
Meadowbank
Parson's Green
Comely Green Place
Comely Gardens
Abbey Hill
Clockmill House
Belville
Holyrood Palace
St C
Whinny Hill
The Queen's Drive
Haggis Knowe
St Anthony's Chapel
Drying Green
Crow Hill
Samsons Ribs
Camstone Quarry
SANCTUARY OF HOLYROODHOUSE
(For Debtors)
THE QUEEN'S PARK
CANONGATE
Hunters Bog
Dry Dam
Parliamentary Boundary
A 680
R 1
P 18
Dunsapie Loch
Dunsapie
Sanctuary Boundary
ARTHUR'S SEAT
Spring
Gutted Haddie
Nether Hill or the Lions Haunch
Powderhouse Corner
Hawthorn Brae
Bellavista
Well
Church
Manse
Duddingston Loch
Entrance to Tunnel
Sheep Hoe
Boundary
Whinny Hill
150
200
250
300
350
400
450
500
600
700

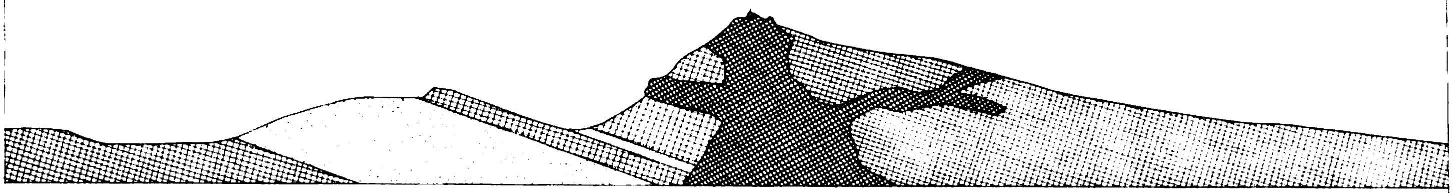
SECTIONS THROUGH ARTHUR'S SEAT

▨ *Trap Rock*

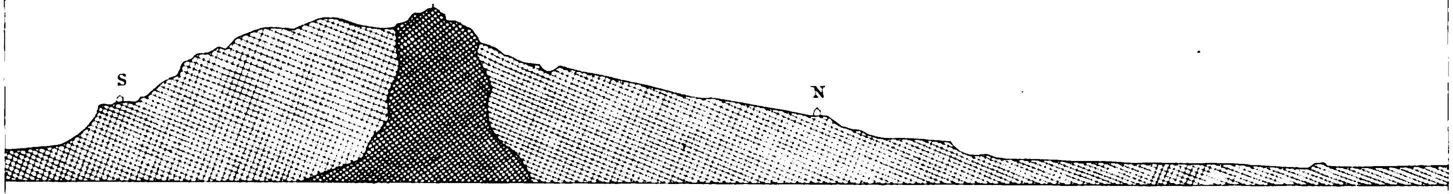
☐ *Sandstone*



Section on the Line A.B.



Section on the Line C.D.



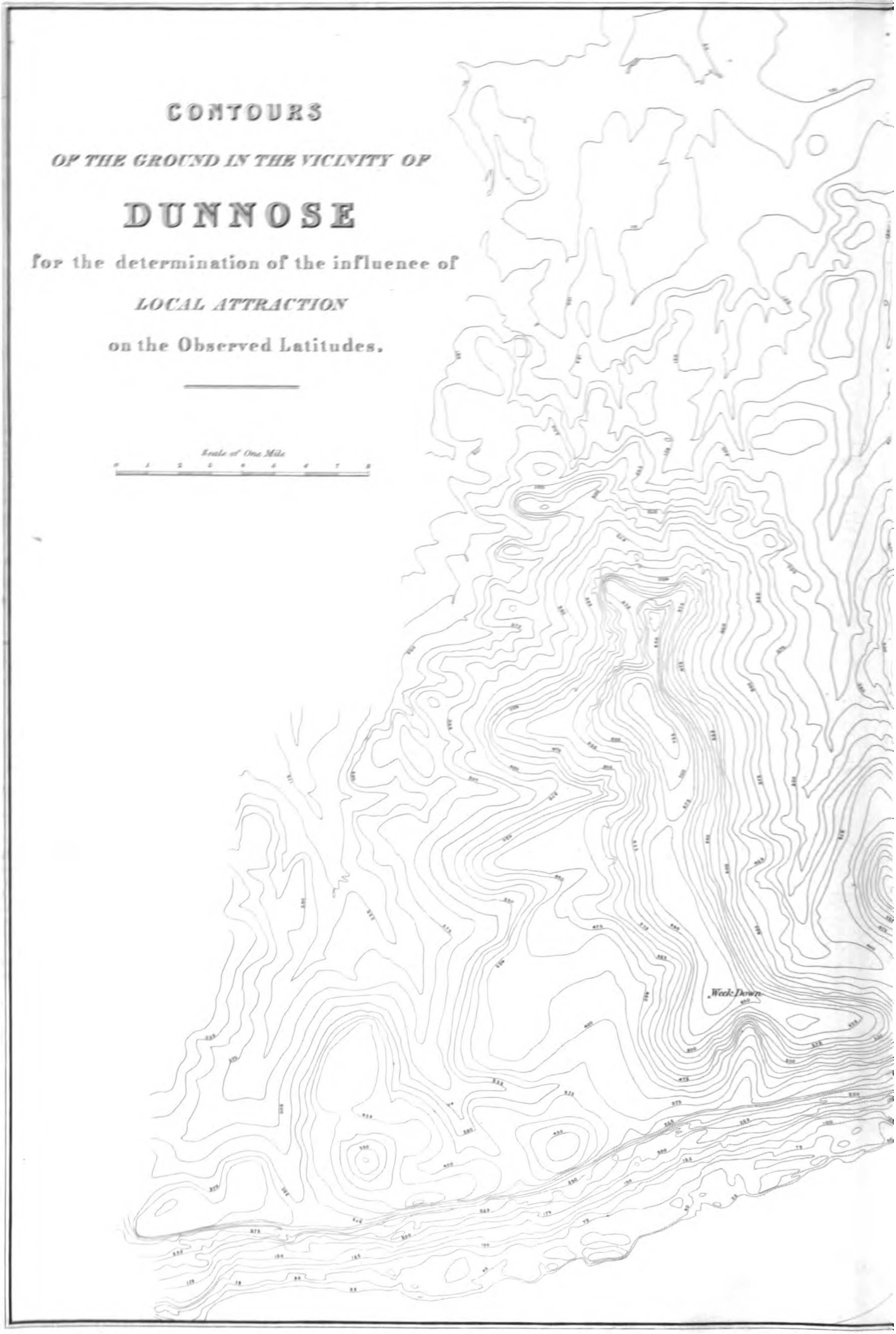
Section on the Line E.F.

Table of the Specific Gravities of the Rocks in Arthur's Seat

No. 1	Trap tuff	2.577	No. 6	Porphyry		2.679
2	Trap conglomerate	3.000	7	Greenstone	(Salisbury Craigs)	2.689
3	Amygdaloidal trap	2.665	8	Do.	very Compact	2.836
4	Basalt (St Anthony's)	2.830	9	Sandstone		2.676
5	Basalt under apex	2.698	10	Do.		2.454
					Mean	2.710

2.75 to be used as the Mean in the Computations

[illegible] at the [illegible] Map Office [illegible]



CONTOURS

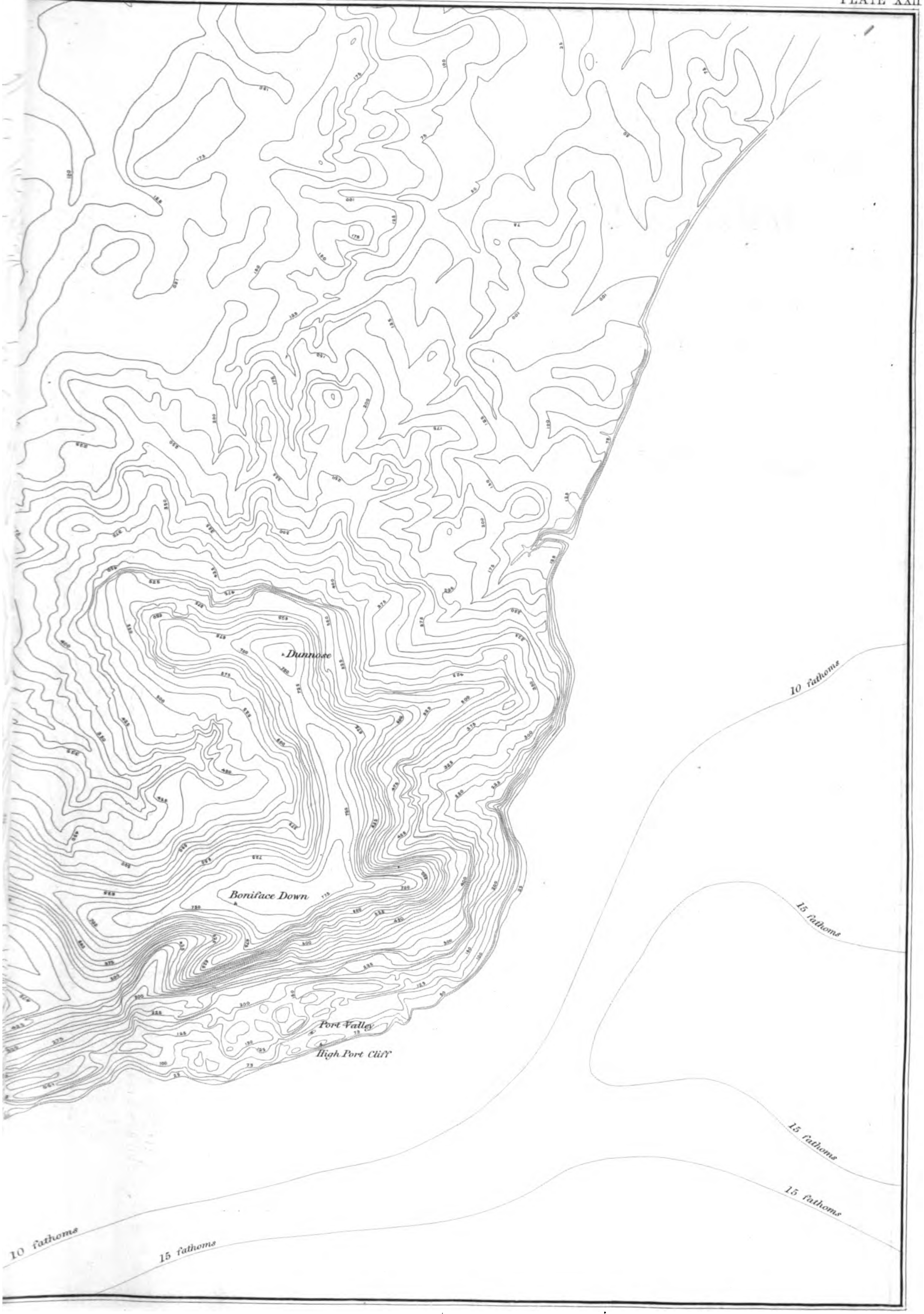
OF THE GROUND IN THE VICINITY OF

DUNNOSE

for the determination of the influence of

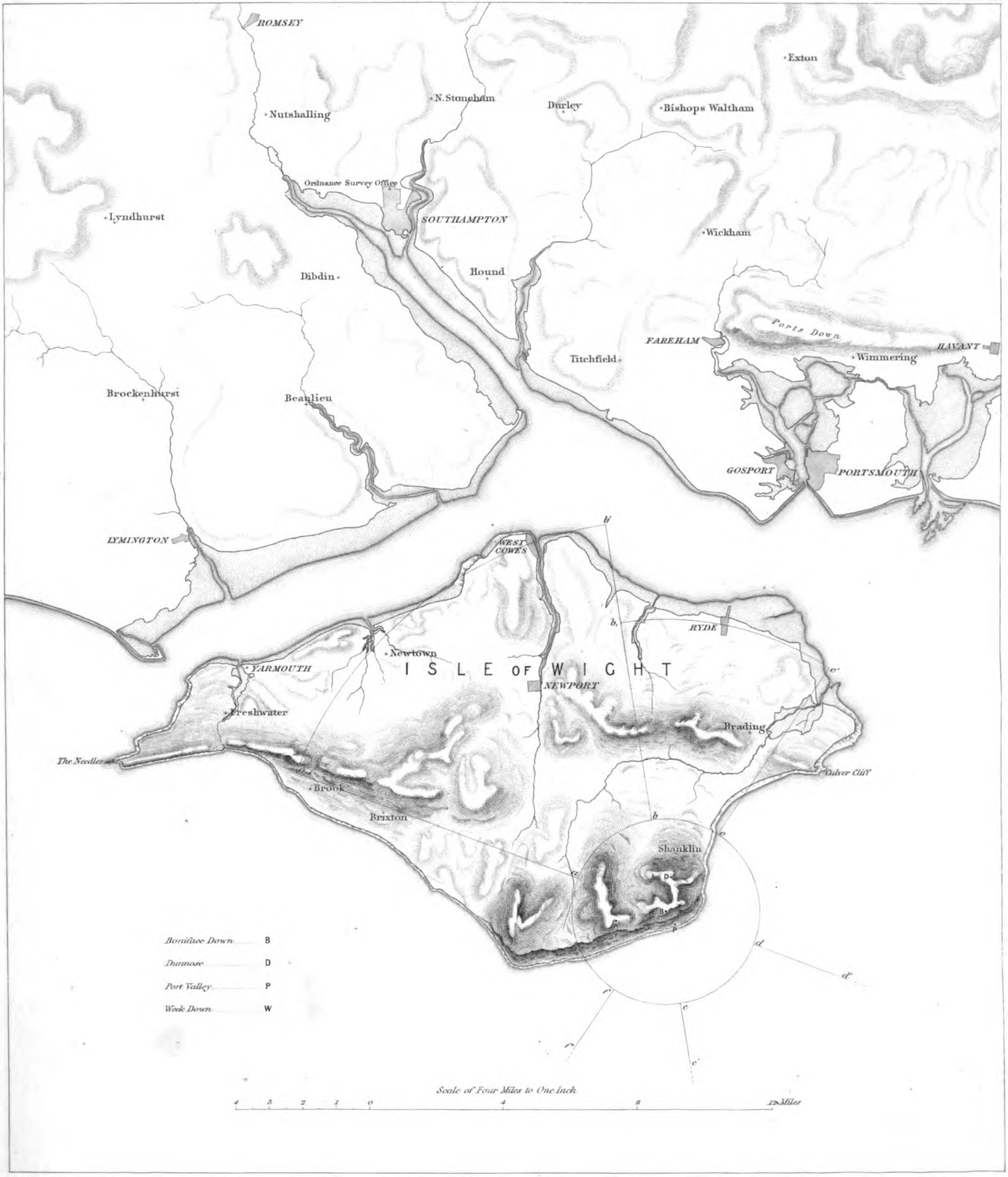
LOCAL ATTRACTION

on the Observed Latitudes.


Dunnose
Boniface Down
Port Valley
High Port Cliff
10 fathoms
15 fathoms
15 fathoms
15 fathoms
10 fathoms
15 fathoms

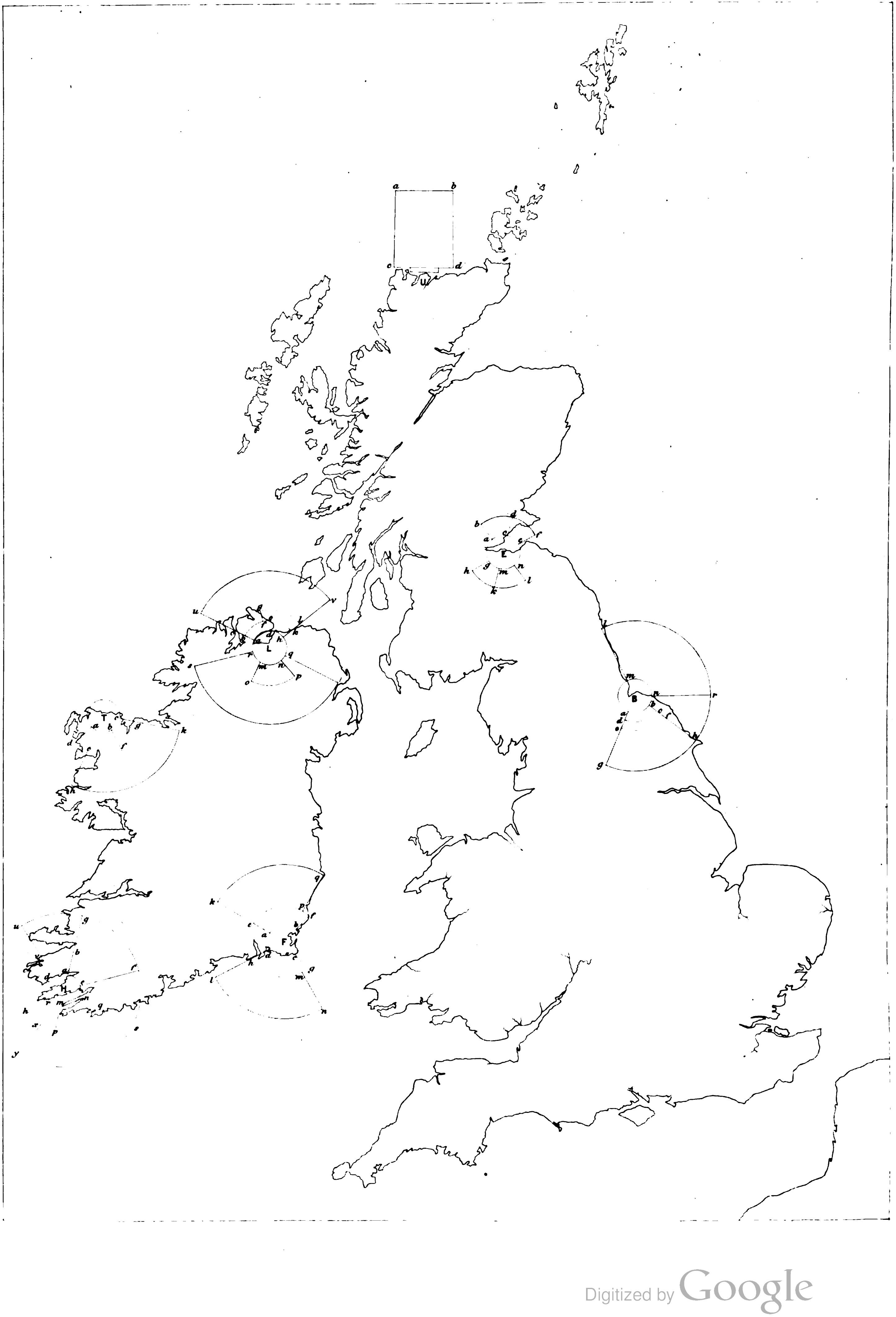
PRINCIPAL TRIANGULATION

PLATE XXIII



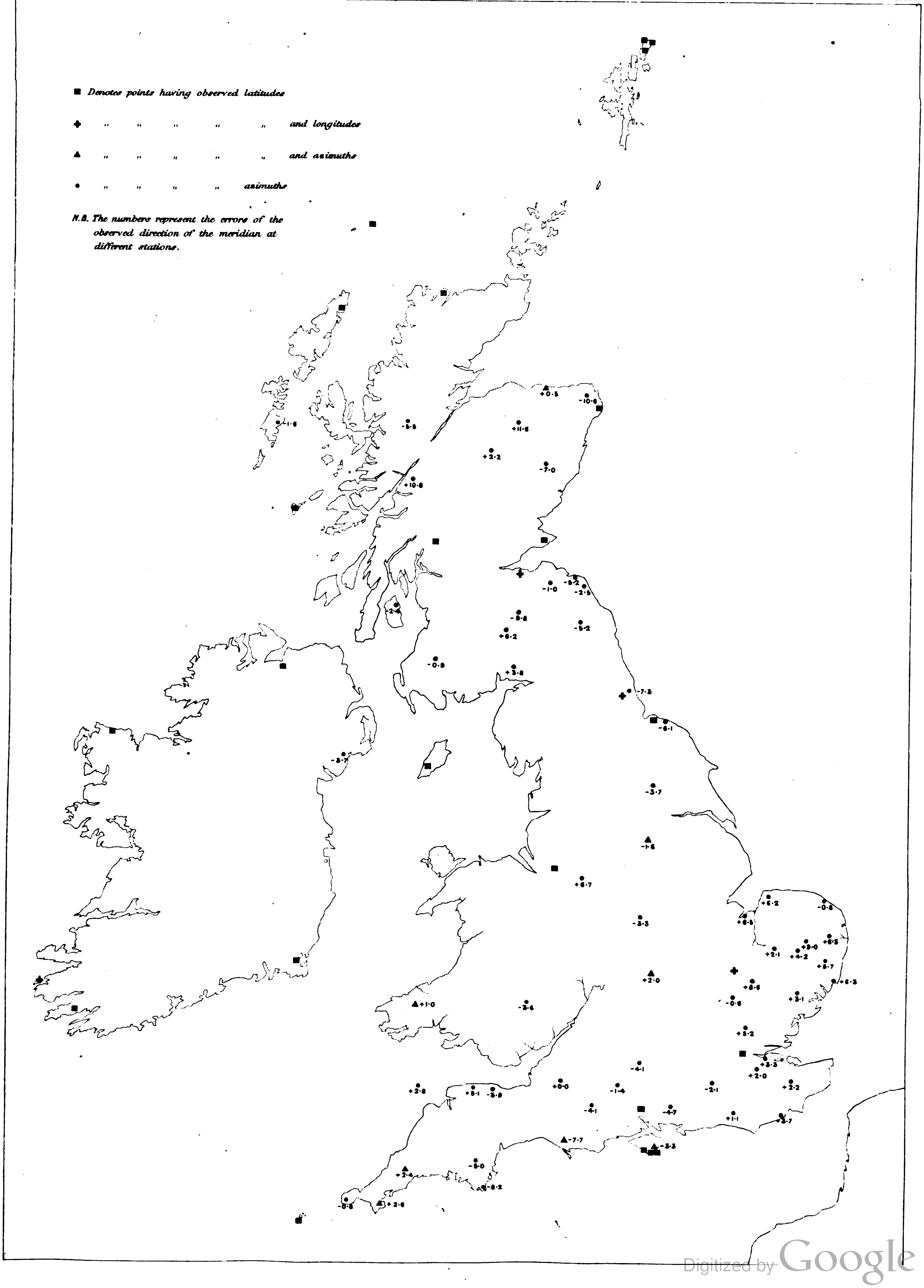
PRINCIPAL TRIANGULATION

PLATE XXIV

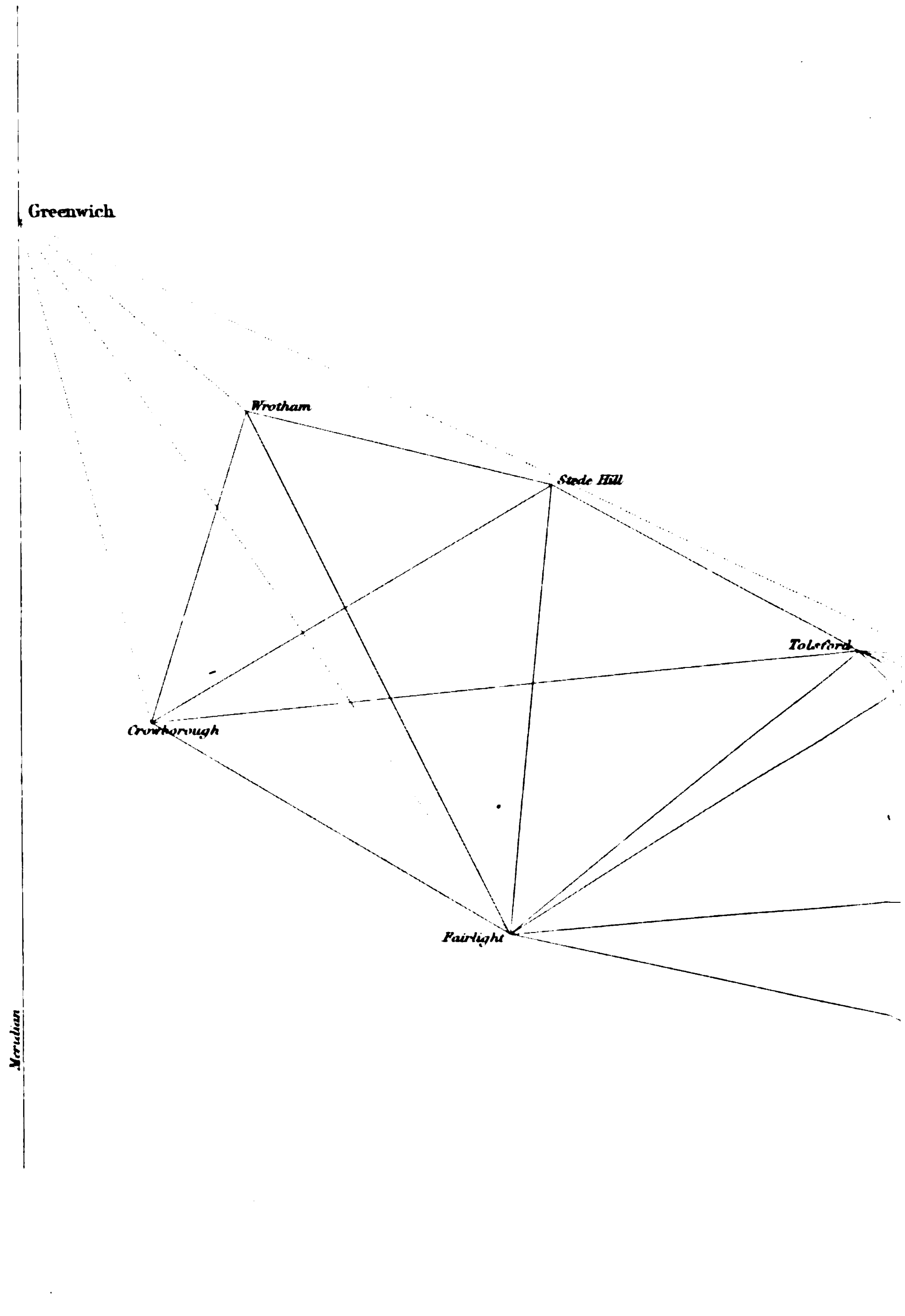


PRINCIPAL TRIANGULATION

PLATE XXV

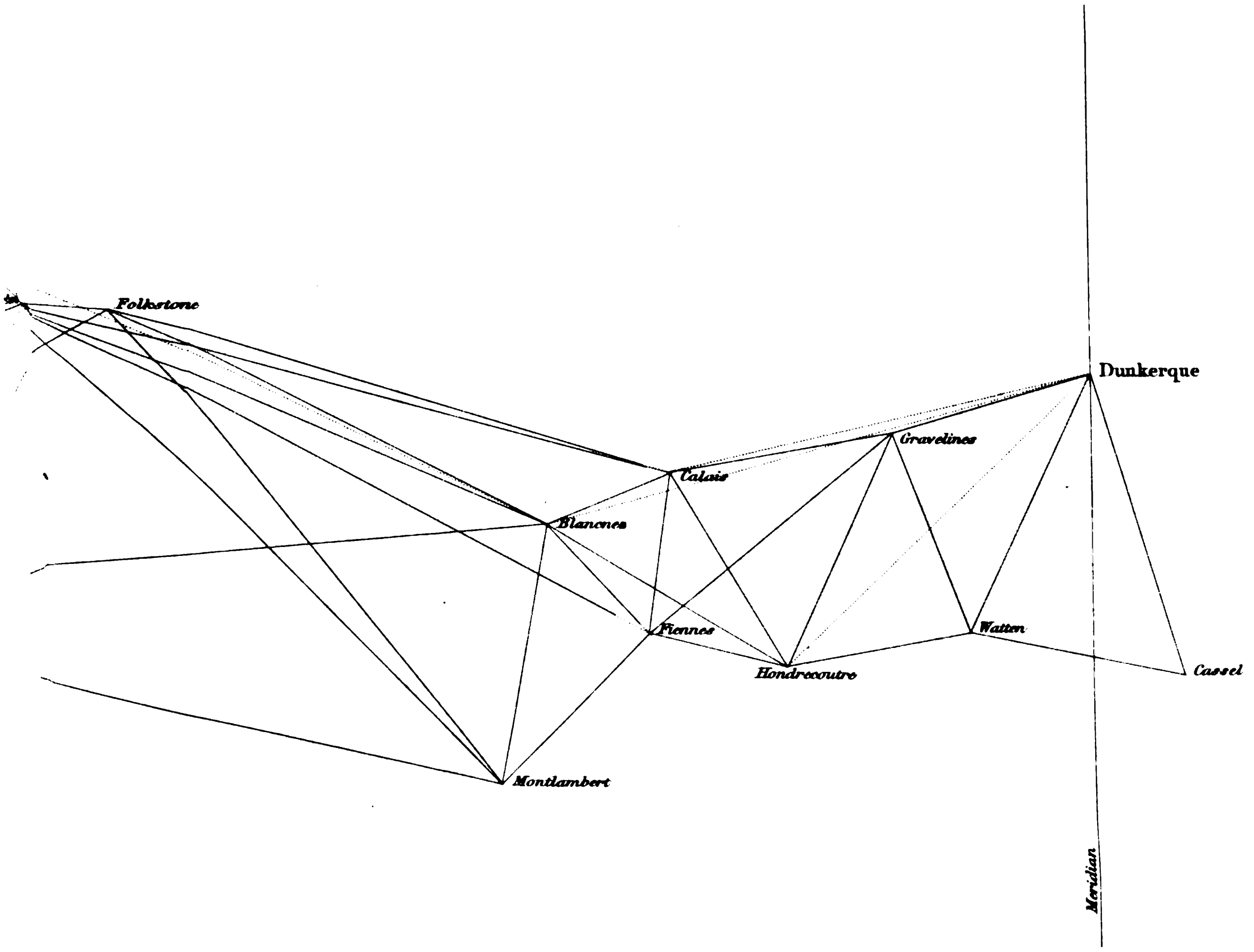


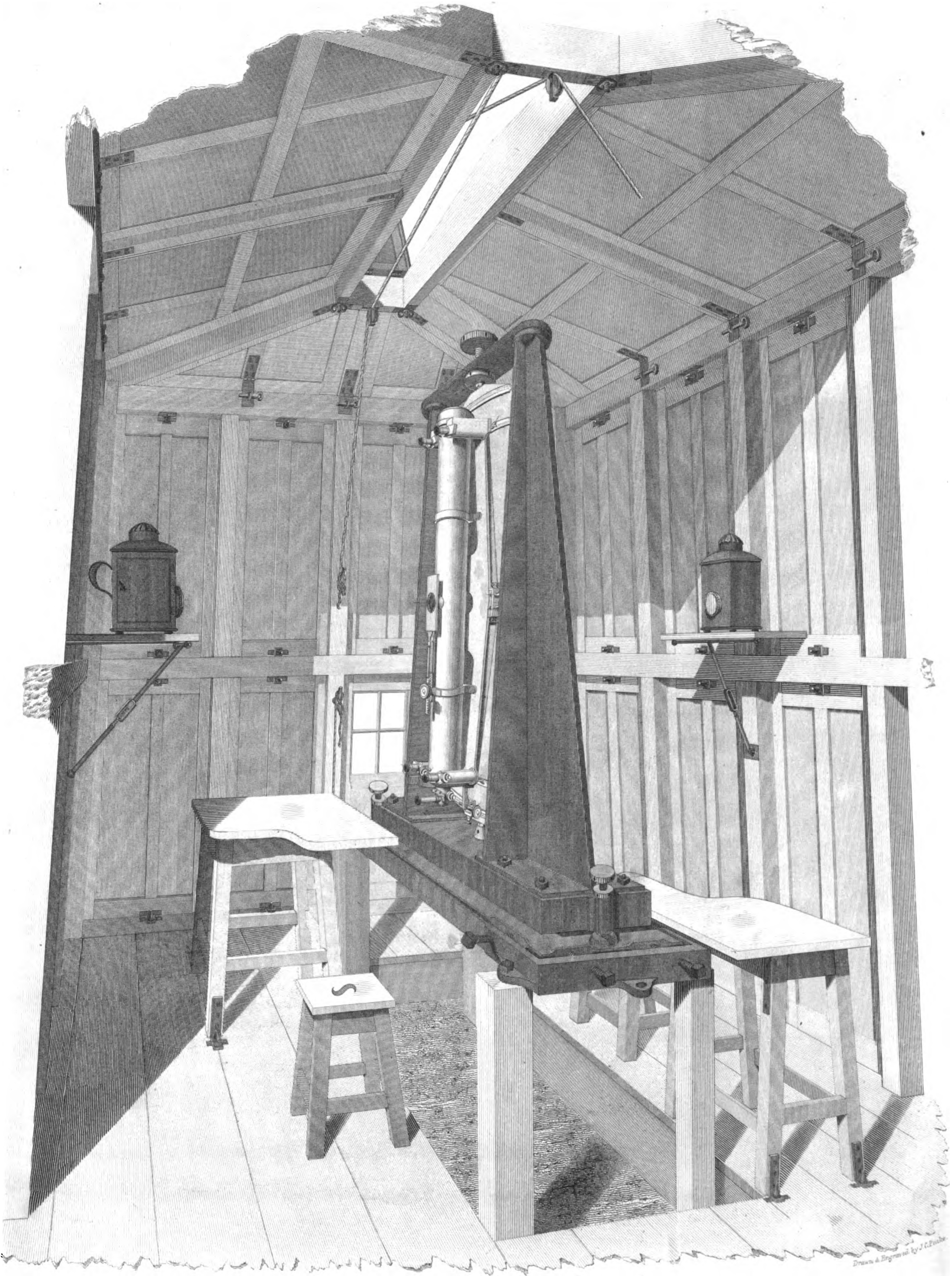
PRINCIPAL


Greenwich
Wrotham
Stede Hill
Tolsford
Crowborough
Fairlight
Meridian

PAL TRIANGULATION

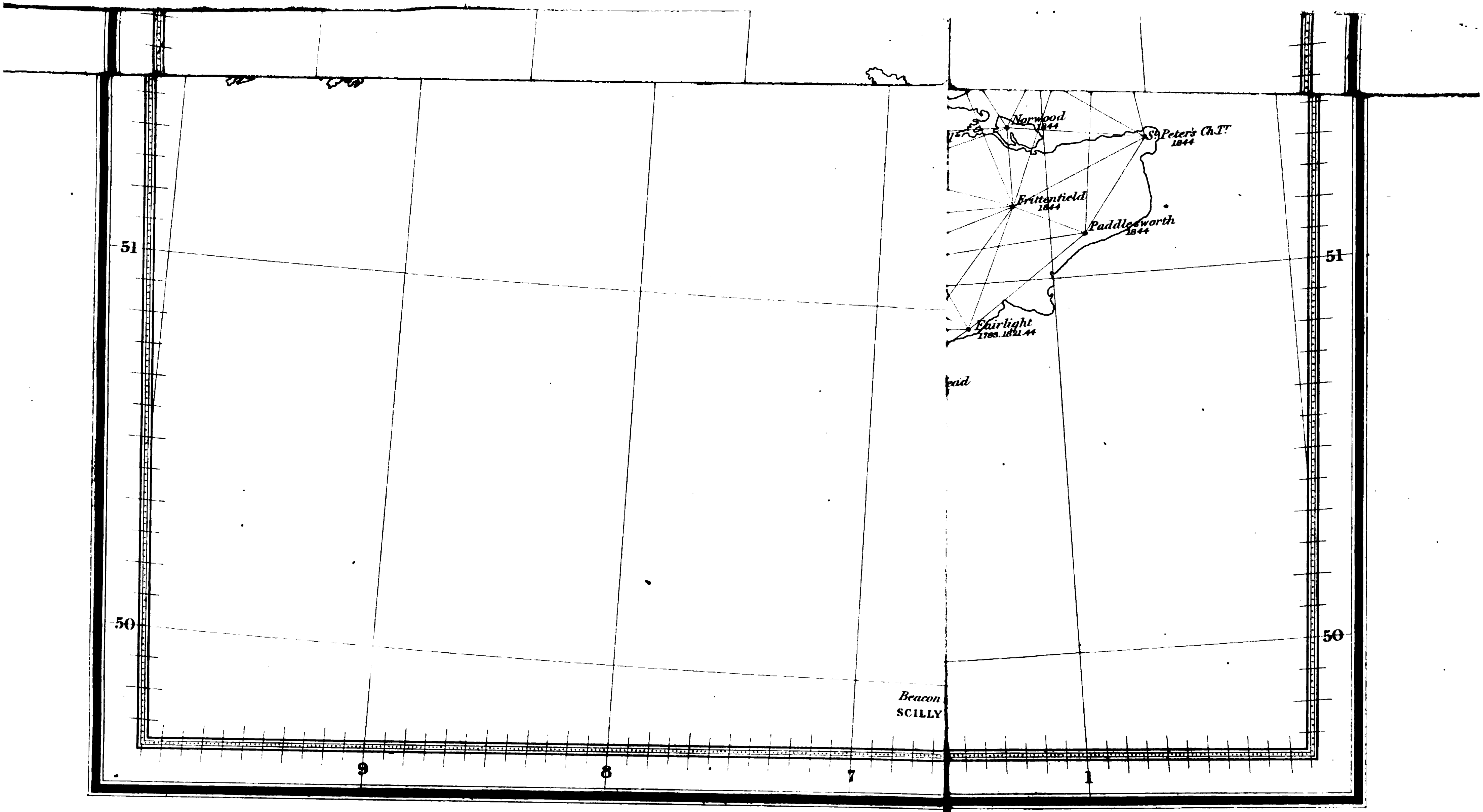
PLATE XXVI





Drawn & Engraved by J. C. Peake.

Interior of the Zenith Sector Observatory shewing the Instrument in position
[illegible]


Norwood
1844
St Peter's Ch.Tr
1844
Frittenfield
1844
Paddlesworth
1844
Fairlight
1783. 1821.44
ead
Beacon
SCILLY
51
50
51
50
9
8
7
1

UNIVERSITY OF MICHIGAN
3 9015 07999 8277